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CAUSALITY IN THE SOCIAL SCIENCES

IN the social sciences, man is studying himself. And his basic attitudes towards himself, his hopes, loves, fears, and hatreds, reflect themselves in what we may call his meta-sociological convictions. These, in turn, express themselves in a choice, broadly speaking, between two modes of social analysis, which I shall call the *interventionist* and the *necessitarian*. The interventionist social scientist believes that men can intervene in social situations to change conditions and determine, in significant measure, the direction of trends. The necessitarian believes, on the contrary, that social science can never be used to deflect the lines of evolution, that men's decisions are perturbations in irresistible movements. From meta-sociological beliefs, there thus arise two corresponding types of laws or models, interventionist and necessitarian, which may be characterized as follows:

A law conforms to a necessitarian model if it is one according to which no decision on the part of a person or group of persons can, given the existing social state of affairs, prevent the predictable successive states from coming into existence.

A law conforms to an interventionist model if it is one according to which the decision of a person or group of persons can intervene to alter the existing state of affairs so that it will be followed by states which would not have occurred and would have been unpredictable apart from those decisions.

It is the argument of this essay that contemporary social science is increasingly giving adherence to an interventionist mode of thought. In economics, political science, anthropology, interventionist models are becoming dominant, and scientists are operating on the basis of a meta-sociological principle of interventionism. Before we undertake to justify this analysis of social science, I should like to point out that the distinction between interventionist and necessitarian laws will be familiar to the student of ordinary economic theory. A competitive market, for instance, is described as one in which there is "a large number of buyers and sellers so that the influence of any one or several in combination is negli-

gible."[1] The forms of the laws of supply and demand for such competitive situations are determinate; market prices are unique resultants without equiprobable alternatives, and individual or group intervention cannot affect their determination. By contrast, the laws of monopoly situations allow for the contribution of interventionist decision. The negotiation of wages, for instance, between a strong trade union and a monopolist employer has no unique possible outcome; there is no single equilibrium position, but rather a neighborhood of equally possible wage-rates. The laws of bilateral monopoly are said to have a "zone of indeterminateness."[2] Under such conditions, the action of a single individual or group can materially affect the determination of price. Where domains of indeterminacy are found, sociological laws have begun to lose their necessitarian character.

1. In political science, the greatest example in the present century of a necessitarian classic is Michels' *Political Parties.* The iron law of oligarchy, according to this work, is "the fundamental sociological law of political parties."[3] Michels argued that no movement can hope to produce profound or permanent changes in the social structure. The inevitable tendency to oligarchy, he said, is inherent in all organization. Trade unions, monastic orders, corporations, and socialist parties are all subject to its workings. With masterly realism, Michels drew an impressive documentation for the law of oligarchy from the organization of revolutionary parties. Other investigators had been led to similar conclusions. Sidney and Beatrice Webb, devoted servants of the Fabian ideal, concluded, after their many years' study of British trade unionism, that there is a universal tendency for the primitive democracy of trade unions to be transformed into personal dictatorships or bureaucracies.[4]

Michels observed the drama of human revolt against the iron law of oligarchy. He counseled the wisdom of resignation. But political sociologists today are often reluctant to acquiesce to Michels' law. They argue that the tendency to oligarchy is neither universal nor necessary; they hold that oligarchic leadership arises under special social and psychological conditions. If most unions tend to become oligarchical, there is still the example of the Typographical Union with its long history of an organized two-party

[1] Edward Chamberlain, *The Theory of Monopolistic Competition,* Harvard University Press, 1933, p. 7.

[2] Joseph A. Schumpeter, *Business Cycles,* Vol. I, New York, 1939, p. 59.

[3] Robert Michels, *Political Parties,* translated by E. and C. Paul, London, 1915, pp. 401–402.

[4] Sidney and Beatrice Webb, *Industrial Democracy,* New York, 1902, p. 36.

system. If Soviet forms are examples of bureaucratic control, there are also the collective settlements of Israel which are seeking by institutional safeguards to restrain oligarchic trends.[5] A sociology of democratic leadership tries to supplant Michels' law; it investigates the conditions of political apathy, it inquires into the extent to which a proliferation of rival oligarchies weakens their respective internal powers, it applies the psychoanalytical method to power-seeking and leader-craving personalities, it studies how oligarchical trends can be mitigated and controlled. The entirety of these efforts will not as yet measure up to the conviction and evidence behind Michels' law. But the meta-sociological standpoint which animates political sociologists today is clear. They are seeking interventionist models of sociological law which will provide the guide for effective contra-oligarchical action.

From the logical standpoint, what characterizes necessitarian laws is that their independent variables are (what I shall call) *inaccessible*. Michels' law, for instance, holds that as an organization matures, it becomes oligarchical. Oligarchical structure is thus a function of time, and nothing can be done by human intervention to arrest the passage of time. The time-variable is inaccessible. Again, in the case of the laws of the competitive market, supply and demand as independent variables cannot be affected by any individual or group. They determine price, the dependent variable, but they themselves are inaccessible to human intervention in the given context. Interventionist models of causal law, on the other hand, are characterized by the quest for independent variables which will be, in large part, *accessible*. If oligarchical trends can be shown to depend on certain specific psychological traits, then intervention on the level of basic personality structure may avail to counteract them. The independent variable, basic personality structure, is presumably accessible through the controls of infant care and child rearing.

2. The power of the meta-sociological principle of interventionism guides social thought in regions where the criterion of verification grows tenuous. A sociological theory wins the allegiance of social scientists not so much because it has more empirical evidence on its side but because it opens up possibilities of human action, of human intervention. The system of economic thought which has become regnant in the last generation is the Keynesian.

[5] S. M. Lipset, "The Two Party System in the International Typographical Union," *Labor and Nation*, Vol. VI (1950), p. 34. Lewis S. Feuer, "Leadership and Democracy in the Collective Settlements of Israel," in *Studies in Leadership*, ed. by Alvin W. Gouldner, New York, 1950, pp. 363–385.

It is amazing how little verification has had to do with its reception.[6] Keynesian ideas have been accepted not because they explained more than others but because they provided a set of causal laws whose independent variables were accessible to action in the immediate present. Roy Harrod in his monumental biography of Keynes states the matter incisively:

> Keynes certainly claimed to be promoting a revolution of thought. The more comprehending critics have had some doubt, on the ground that his main work did no more than substitute one system of concepts for another. In the physical sciences some crucial test is usually available to decide between conflicting theories. If Keynes was really to be successful, he should have been able, it is argued, to refute, say Mr. D. H. Robertson, by showing a set of facts which the Keynesian doctrine would fit, while the other would not. Unhappily the state of economics is not so advanced. It is true to say that the Keynesian scheme consisted in essence of new definitions and a re-classification. . . . In a certain sense one cannot dogmatically affirm one way to be right and the other to be wrong. . . . It is by actual use and application, not by logic, that Keynes has been, and will, I am confident, continue to be triumphantly vindicated.[7]

Underlying the reception of Keynesian theory was the will to intervene in economic processes. When many men are unemployed, and when the social feelings of the economist are genuine, there is a desire to be able to do something about human misery. We don't care to say: "in the long run, the automatic, self-regulating operations of supply and demand will eliminate sub-marginal firms, and lower wages till the demand for labor rises." "In the long run," as Keynes said, "we are all dead." Not that we can really refute the non-interventionist. Herbert Hoover is convinced that if only we had followed his policy of doing nothing for another six months in 1932, then recovery would have set in. And he ascribes the unemployment of the next decade to the pursuit of Keynesian policies.[8] There is no crucial refutation of this thesis, but it runs counter to the will to intervene which is the response of unresigned men to social crisis.

A meta-economic standpoint, a philosophy of history, was the source of the Keynesian interventionist system of causal laws. Schumpeter has observed that every comprehensive economic theory consists of two complementary but distinct elements. There is first the thinker's vision, his view as to the basic features of society, "about what is and what is not important in order to understand its life at a given time." Secondly, there is the theorist's

[6] Cf. Lawrence R. Klein, *The Keynesian Revolution*, New York, 1947, p. 107. Also, Lord Beveridge, *Power and Influence*, London, 1953, p. 253.

[7] R. F. Harrod, *The Life of John Maynard Keynes*, New York, 1951, pp. 462–463.

[8] *The Memoirs of Herbert Hoover, The Great Depression 1929–1941*, New York, 1952, pp. 267, 351, 475, 482.

technique, the apparatus "by which he conceptualizes his vision."[9] Keynes had stated his vision in his early *Economic Consequences of the Peace.* His later theory was the product "of a long struggle to make that vision of our age analytically operative." What was Keynes' vision? In essence, it was a commitment to the postulate of interventionism during an era when impersonal forces might make for the collapse of capitalism. Keynes' mind was filled with images of the struggle between human ideas and an Immanent Will. In one mood, he was depressed by the necessitarian forces of history, and he wondered if a self-destructive impulse inevitably overcame ruling classes. "Perhaps it is historically true," he wrote, "that no order of society ever perishes save by its own hand. In the complexer world of Western Europe the Immanent Will may achieve its ends more subtly and bring in the revolution no less inevitably through a Klotz or a George than by the intellectualisms . . . of the bloodthirsty philosophers of Russia."[10] He spoke of the spectacle of the extraordinary weakness of the great capitalist class, the terror and personal timidity of its individuals. At the last, however, Keynes held fast to the faith that human ideas and individual decision can affect the course of history. The hidden currents beneath the surface of political history, he said, are unpredictable in their outcome. "In one way only can we influence those hidden currents,—by setting in motion those forces of instruction and imagination which change *opinion.* The assertion of truth, the unveiling of illusion, the dissipation of hate, the enlargement and instruction of men's hearts and minds, must be the means."[11] The practical fruit of Keynes' interventionist faith were the proposals in his *General Theory* to apply economic wisdom in fiscal policy and public investment in order to achieve a high level of employment, and preserve the capitalist system.

Whenever the attempt is actually made to verify the efficacy of human decision and attitude in historical crisis, the blind alley of unverifiability besets us. Schumpeter, for instance, affirmed that the decline of the capitalist system does not arise from the workings of an economic pattern like vanishing investment opportunity. He held that capitalism is decaying because of the spread of an anti-capitalist mentality, because profit-seeking is under the

[9] Joseph A. Schumpeter, *Ten Great Economists,* New York, 1951, p. 268. "He was childless and his philosophy of life was essentially a short-run philosophy. So he turned resolutely to the only 'parameter of action' that seemed left to him, both as an Englishman and as the kind of Englishman he was—monetary management." Ibid., p. 275.

[10] John Maynard Keynes, *The Economic Consequences of the Peace,* New York, 1920, pp. 237–238.

[11] Ibid., pp. 296–297.

taboo of moral disapproval.[12] How can this theory be weighed as against the Marxian or Keynesian? Prolonged economic depression will invariably be accompanied by a loss of confidence in the dominant system. To test Schumpeter's theory, we should have to exhibit a battered economy which still preserved the undaunted confidence of its citizens. But we are dealing with inseparable variables, loss of faith and economic depression, which cannot be exhibited in isolation. How shall we verify Schumpeter's theory concerning the causal role of human attitudes? In the end, it embodies like the Keynesian philosophy a conviction in the power of human attitudes to mould the workings of impersonal economic forces.

3. It might perhaps be gathered that the necessitarian mode of thought in economics is the monopoly of the Marxians. Certainly, the Marxian law of the decline of capitalism is a supreme example of the necessitarian model, and its apocalyptic finalism has given to the communist movement a kind of religious exaltation.[13] At the same time, however, it is striking that there is a widespread school which conceives of the inevitable cataclysm of socialism in the same necessitarian manner. The hasty prophets of the debacle of socialism, Hayek and Mises, have evolved a species of dialectical law akin to the Marxian. These thinkers, in Hayek's words, hold that in economic analysis there are "inherent necessities determined by the permanent nature of the constituting elements."[14] In conformity with this belief, Mises, as far back as 1920, argued that rational calculation is impossible in a socialist economy, and that the Soviet economy was bound to collapse. Soviet society, he wrote, is "in a state of entire dissolution," and a "closed peasant household economy" is replacing the disintegrating order.[15] The necessitarian thus held to a simple law: every socialist economy

[12] Joseph A. Schumpeter, "Capitalism in the Postwar World," in *Postwar Economic Problems*, ed. by Seymour E. Harris, New York, 1943, pp. 119–121.

[13] It is noteworthy that according to Stalin, bureaucratic interventionism has terminated the Marxian law of dialectical necessity. The "law of transformation of quantity into quality," he wrote, "is not at all compulsory for a society which has no hostile classes." The transition to collective farms was peaceable and gradual, he declared. "And we succeeded in doing this because it was a revolution from above, because the revolution was accomplished on the initiative of the existing power . . ." (Joseph Stalin, *Marxism and Linguistics*, New York, 1951, pp. 27–28). The political use of doctrines is capable of strange permutations. A movement of social liberation may espouse a necessitarian philosophy, while interventionism, in its bureaucratic version, becomes the apologetic for tyranny.

[14] *Collectivist Economic Planning*, ed. by F. A. von Hayek, London, 1935, p. 12.

[15] Ibid., p. 124.

must inevitably founder because it cannot solve the problem of economic calculation.

As the years went on, Mises' prediction remained unfulfilled. But no necessitarian need ever abandon his hypothesis if facts delay its verification. To save his "law" after fifteen years' delay in its working, Mises proposed an unusual modification in its terms. Soviet society, he said, had endured because it was surrounded by capitalist economies from which it derived its standards of rationality. Leon Trotsky held that socialism was impossible in one country; Mises, we might say, held that it's possible only in one country.[16] Still another decade and generation passed by, and the collapse of Soviet economy was still postponed. The economic necessitarians, such as Hayek, have now tended to become sociological necessitarians. They no longer emphasize the prediction of the decline of socialist economy. What they now insist upon is the sociological causal law: that every socialist society must inevitably become totalitarian, because the power of the socialist planners must grow to a dictatorial magnitude. Hayek, therefore, predicted that individual freedom, civil rights, intellectual liberties, would all vanish in a socialist world. It is curious that such critics of socialism have been led to adopt an extreme economic determinism, the principle that the form of economy determines the political superstructure. And the defense of socialist thinkers, notably R. H. Tawney, has been that socialist culture is not bound by a necessitarian law, that human initiative and intervention can help fashion the moral and political relations which will rest on the socialist economic foundation. Socialists today are beginning to base their proposals not on a necessitarian creed, but on the postulate of interventionism.[17]

4. The quest for a new type of interventionist theory has become most pronounced in the science of anthropology during the

[16] "The attempt of the Russian Bolsheviks to transfer Socialism from a party programme into real life has not encountered the problem of economic calculation under Socialism, for the Soviet Republics exist within a world which forms money prices for all means of production. . . . Without the basis for calculation which Capitalism places at the disposal of Socialism, in the shape of market prices, socialist enterprises would never be carried on, ..." Ludwig von Mises, *Socialism*, translated by J. Kahane, London, 1936, p. 136.

[17] A form of necessitarian doctrine meanwhile has been adopted by sociologists like W. Lloyd Warner who argue that "classless societies are impossible" because the division of labor requires supervisory functions. If a group of supervisors is a class, then the existence of classes is a tautological consequence of the division of labor. A necessitarian argument is valid in this sense, but this tautology is scarcely the meaning intended by those who have argued for social and economic equality. Cf. W. Lloyd Warner, Marchia Meeker, Kenneth Eells, *Social Class in America*, Chicago, 1949, pp. 3–32.

years after the Second World War. With the development of programs for technical and educational assistance to the peoples of backward areas, programs associated with the United Nations, the Food and Agricultural Organization, the World Health Organization, and the American Point-Four, the pre-war necessitarian anthropological theory has been receding into a rapid obsolescence. Functionalism was the dominant standpoint in the pre-war years. Some may be surprised to hear it described as an example of the necessitarian mode. But the accuracy of this description can be briefly shown.

Functionalism, in the form which Malinowski gave it, affirms that culture is an "organic unity"; it is the principle that in every culture, each custom, belief, and behavorial form "represents an indispensable part within a working whole.[18] According to this scheme of thought, deliberate intervention to modify or reconstruct a culture is foredoomed to failure. To the functionalist, there are, indeed, no accessible variables in the analysis or control of cultures. To tamper with one institution is at once to rend the fabric of the total society.[19] Each culture is like an idealistic Absolute, a totality which cannot be altered by modifying strategic segments, an "organic unity" which is disrupted by the crude hands of social planners. The policy consequence of functionalism was straightforward; its practical bearing for applied anthropology was the admonition: don't try to disturb cultures, don't try to change them. Colonial administrators were exhorted not to lay hands upon the delicate patterns of native culture. An imperial proconsul like Lord Lugard was especially praised because his method of so-called "indirect rule" exemplified functionalism in action. The practical value of his standpoint, said Malinowski, was "that it can help the white man to govern, exploit, and 'improve' the native with less pernicious results to the latter." How shall we, for instance, deal with sorcery? Shall we undermine the sorcerer's authority with medical and technological assistance? Malinowski's answer is that "since it invariably ranges itself on the side of the powerful, wealthy, and influential, sorcery remains a support of vested interest; . . . . It is always a conservative force, ... There is hardly anything more pernicious, therefore, in the many European ways of interference with savage peoples, than the bitter animosity with which Missionary, Planter, and Of-

[18] Bronislaw Malinowski, "Social Anthropology," *Encyclopaedia Britannica*, Fourteenth Edition, New York, 1929, Vol. 20, p. 864.

[19] As S. H. Roberts stated: "An attack on one part of a closely interrelated native structure usually meant the collapse of the whole" ("Native Policy," *Encyclopaedia of the Social Sciences*, Vol. XI, 1933, p. 274).

ficial alike pursue the sorcerer.'' [20] Those who would manage native labor and exploit effectively the resources of tropical countries would do well, says Malinowski, to study functionalist anthropology.[21] Would it contravene the evidence to assert that functionalism was an expression of the wisdom of a managerial imperialism?

Positivist critics have sometimes suggested that functionalism is nothing more than a tautology. If that were the case, we should be much less concerned with its consequences. It is characteristic, however, of some thinkers that they desire to prove that nobody is saying anything about anything, an aspect of the self-destructive drive which seems to underlie much contemporary philosophizing. The functionalist concept in anthropology, however, is used in much the same way as the notion of equilibrium in economics.[22] Where a culture has persisted virtually without change for the lifetime of several generations or more, one can assume that the institutions of its social system have achieved an equilibrium with respect to each other. The religious institutions, for instance, have come to sustain the tribal economy, they raise no voice of criticism, the mythology and folk tales which are prevalent support the political authority, the economy subsidizes the religious leaders. Social institutions are, in the last analysis, founded on human needs, but what is important to observe is that each cultural equilibrium imposes a kind of schedule on needs. It decides which needs are more and less important, it determines the extent to which given needs will be expressed or repressed. Every culture has its unique *repression-expression* schedule, the resultant line of equilibrium located by the interactions of institutions upon men's emotional needs. That every culture is an ''organic unity'' is a vague way of trying to say something similar to what the economist says when he holds that all the agents of production and consumption in a system are in general equilibrium.

What functionalism, however, has failed to emphasize is that there are cultural equilibria at higher and lower levels of human satisfaction. Keynes dwelled on the fact that there are alternative states of equilibrium possible, each with its respective level of

[20] Bronislaw Malinowski, *Crime and Custom in Savage Society*, London, 1926, p. 93.

[21] Ibid., p. 1. ''Social Anthropology,'' loc. cit., p. 864. Malinowski adds: ''Since conservatism is the most important trend in a primitive society, sorcery on the whole is a beneficent agency, of enormous value for every culture'' (*Crime and Custom in Savage Society*, p. 94).

[22] Cf. A. R. Radcliffe-Brown, ''A Note on Functional Anthropology,'' *Man*, Vol. XLVI, 1946, p. 40. This valuable essay traces the various stages in Malinowski's thought, and records the fact that the name ''functionalism'' was derived from the functional jurisprudence of Roscoe Pound.

unemployment. An economy can be in equilibrium, despite a high measure of unemployment with the consequent suffering of citizens. Similarly, a culture can be at functional equilibrium with a repression-expression schedule which imposes much hardship upon its members. And such a society, although it's "integrated" and a "living whole," is exceedingly vulnerable to external stimuli; its equilibrium is unstable. The anthropological philosophy associated with Point Four recognizes the vulnerability of cultures in unstable equilibrium, and proposes that social science help intervene in the domain of those accessible variables which control the proportions of repression.[23]

Hitherto, the anthropologist in the field has tried hard to be inobtrusive, not to affect the social system which he was observing. The skilled anthropologist has been something like a painter, and it is not surprising that his categories have been aesthetic. When directed change is, however, introduced within segments of a culture, latent dissatisfactions are brought to the surface, unvoiced aspirations for different ways of living are articulated, the degree of intensity of resistances to specific reforms can be ascertained. There are in India, for instance, religious resistances to a program of birth control education. But an experiment in cultural reconstruction has been undertaken by the Government together with the World Health Organization. Does the culture of the Indian peasantry fall apart? Rather the peasants welcome the new program, and urge its extension as a way of dealing, at least in part, with poverty and starvation.[24] The functionalist was concerned to strengthen those agencies which would resist cultural change. The interventionist seeks out the loci of discontent, helps people to express their needs, and renders assistance to those persons and groups who have felt especially the impact of repressive forces, and who would lead their societies in cultural innovation.[25]

[23] As the English psychologist, F. C. Bartlett, has written: "Every culture has its 'hard' or its 'soft' points. If change is first sought at the former, it will provoke resistance and very likely open discord, while the latter are yielding and it is from them that reformation will spread." Cf. "Psychological Methods for the Study of 'Hard' and 'Soft' Features of Culture," *Africa*, Vol. XVI (1946), p. 145.

[24] S. Chandrasekhar, "The Prospect for Planned Parenthood in India," *Pacific Affairs*, Vol. XXVI (1953), pp. 324–325.

[25] See especially the essays of Ralph Linton, Melville J. Herskovits, and Morris E. Opler, in *The Progress of Underdeveloped Areas*, ed. by Bert F. Hoselitz, Chicago, 1952, pp. 109, 126, 90–91. Also, cf. Lewis S. Feuer, "End of Coolie Labor in New Caledonia," *Far Eastern Survey*, Vol. XV (1946), pp. 264–267. Kennard and MacGregor state: "The great opportunity for the anthropologist lies in the problem of the extent to which purposive change can be

5. There is a tendency to assume that a necessitarian standpoint, if adopted, applies to all social systems, and the interventionist is likewise apt to extend his model to all history. It may be the case, however, that human decision counts for more in certain social systems than in others. Not even a hero might have prevailed against the forces making for the decline of the Western Roman Empire, and much less than heroic intervention might change hopefully the course of events in our time. A recent necessitarian historian insists that "there was no way out for the Roman Empire." [26] He builds up a kind of immanent dialectical law for its decline: the Empire was based on slavery, the internal market flagged because of the extremes of wealth and poverty, the Roman peace entailed a drying-up of the main source for the supply of slaves. But the necessitarian schemas are never quite convincing. Manumission of slaves became extensive in Rome, and to add to the confusion, if slaves had been needed, their breeding could have been attempted. Moreover, there is always the embarrassing fact of the continued survival of the Eastern Roman Empire for almost a thousand years despite the operation of the same factors that are alleged to have brought Western Rome to its end. Barbarian invasions, the dominance of large estates, the corporative economy, were as much a part of the history of the Byzantine Empire as of the West, but it maintained its existence, nonetheless.[27] The historical pattern is made of unruly material, recalcitrant to designs of inevitability. But at the same time, we find ourselves reluctant to accept the view of J. B. Bury that it was a conflux of coincidences which brought the Roman Empire to its downfall. General causes, Bury held, do not usually explain the great events of history; the chance conjunction of unforeseeable Asian irruptions and a series of incompetent emperors, in his opinion, brought Rome to its decline.[28] Impersonal social forces of a powerful kind do, however, impress one as having been at

introduced, how rapidly, and with what consequence to different segments of the Society" ("Applied Anthropology in Government: United States," in *Anthropology Today*, ed. by A. L. Kroeber, Chicago, 1953, pp. 839–840). Also, cf. Felix S. Cohen, "Anthropology and the Problems of Indian Administration," *The Southwestern Social Science Quarterly*, Vol. XVII (1937), pp. 1–10.

[26] F. W. Walbank, *The Decline of the Roman Empire in the West*, London, 1946, p. 73.

[27] A. V. Vasiliev, *History of the Byzantine Empire*, Madison, Wisconsin, 1928, Vol. I, pp. 191–197, 417–423. Peter Charanis, "Economic Factors in the Decline of the Byzantine Empire," *The Journal of Economic History*, Vol. XVIII (1953), p. 421.

[28] Cf. J. B. Bury, *Selected Essays*, ed. by Harold Temperley, Cambridge University Press, p. 66, xxvi-xxvii.

work in the Western Empire; perhaps the social determinants were not sufficient to constitute a closed necessitarian system, but the margin for human intervention, the degree of freedom which the Roman social system allowed, was small as compared to later societies. Individual decision was overwhelmed in a relatively necessitarian environment. Anything like direct experimental evidence is beyond us with respect to this question, but we can argue that just as economic laws are sometimes necessitarian and sometimes, more or less, interventionist, so the same diversity may likewise characterize the modes of social systems.

The old formulations in the philosophy of social science have become obsolete. The social scientist today is neither historical idealist nor historical materialist; he tends to be what we might call an historical interventionist. He may agree with the Marxian that economic variables are, in many sociological laws, the accessible ones. The importance which sociologists assign to land reform in the Middle and Far East is one such acknowledgment of economic primacy. At the same time, the historical interventionist denies that the fact of human decision can itself be always subsumed in a scheme in which it is dependent on economic independent variables.

Take, for instance, the choice which confronted the Jews of Spain in 1492. On March 30th of that year, the Spanish monarchs decreed that Jews must become Catholics or otherwise leave the country. A few months' grace was allowed for their decision; the Jews furthermore were forbidden to take with them any gold or silver. An inventory of all the facts of the Spanish mode of production, a knowledge of the role of the Jews in the Spanish economy,—none of these economic facts would have enabled us to predict the decision of the greater part of the Jews. "Stunned at first by the blow, as soon as they rallied from the shock, they commenced preparations for departure. . . . The sacrifices entailed on the exiles were enormous. . . . There were comparatively few renegades. . . . There was boundless mutual helpfulness; the rich aided the poor and they made ready as best they could to face the perils of the unknown future."[29] Nor was the decision of the Jews the outcome of the influence of some single outstanding individual or individuals. Without a hero to guide them, it was the group which made its decision as to how to act in a great crisis.

6. At every great historical crisis, a situation obtains which we may describe as one of "existential indeterminacy." When the

[29] Cf. Henry Charles Lea, *A History of the Inquisition in Spain*, New York, 1906, Vol. 1, pp. 137–142.

laws of a social system which is breaking down provide no basis for the prediction of the structure of the successor social system, an interval of existential indeterminacy ensues.[30] Let us imagine, for instance, that some primitive society has been making its living through some form of hoe culture. Over a period of years, its population has come to exceed its output of subsistence. A social crisis then confronts the group. What shall be its response? There are, indeed, a number of possible responses to the problem. The society may revise its values to allow for infanticide, or it may decide to destroy its old, or it may embark upon cannibalism. Through chance or inventive genius, it may perhaps discover and adopt a more intensive mode of agriculture; on the other hand, perhaps some warlike leaders will gain the ascendancy, and lead the people into a war for their neighbor's lands.[31] Or perhaps, like the ancient Hellenes on an arid soil, they will take to the sea, to become fishermen or traders. A society in crisis is in unstable equilibrium; some fortuitous occurrence may then be decisive in determining which of several possible outcomes will be realized. But an exhaustive knowledge of the structure and functioning of the system in crisis will not enable us to foretell by which alternative order it will be followed.[32]

The postulate of interventionism is the assertion that in critical social situations, men can shape their own history; the postulate affirms that human decision can be crucial in determining which of several alternative solutions to a crisis will be realized. To put it in more analytic terms, the postulate of interventionism affirms that, in critical situations, the unknown governing laws are laws in which one or more of the independent variables are accessible. Now there is a temptation to set up an interventionist metaphysics just as there is a necessitarian one. Existentialism seems to me precisely a metaphysics of intervention in the sense that it holds that free choice is inherent in every situation. But the social

[30] For the significance of indeterminacy in the analysis of economic change, cf. Lewis S. Feuer, "Indeterminacy and Economic Development," *Philosophy of Science*, Vol. 15 (1948), pp. 225–241.

[31] The historian today finds the outburst of aggressive energy among the Mongols in the thirteenth century as much a "psychological riddle" as it was to the medieval chronicler who wrote: "God alone knows who they were and whence they came." Cf. George Vernadsky, *The Mongols and Russia*, New Haven, 1953, p. 5; N. K. Gudzy, *History of Early Russian Literature*, translated by S. W. Jones, New York, 1949, p. 201.

[32] Why, for example, did the Romans fail to develop the intensive agriculture, with the use of excrement as manure, which became prevalent in China and Japan? The historian answers: "We do not know." Cf. Vladimir G. Simkhovitch, *Toward the Understanding of Jesus*, New York, 1927, p. 111.

scientist, we might say, is not a metaphysical existentialist, but rather a logical or methodological one. He finds situations where human freedom is reduced to nullity, where man far from being the captain of his soul is more like a private on fatigue. He finds fortunate conditions under which men are sometimes free. The postulate of interventionism cannot be proved. It is a working conviction of human beings who know at any rate that no necessitarian law of history can be demonstrated. Perhaps, unbeknown to us, the ultimate meta-historical truth may be that man has been lured by a malevolent God to seek for invention, that the inevitable culmination of human history is the self-extinction of the human race through cobalt bombs. The rise and decline of the human race would then be the underlying necessitarian law of history. And the Luddites, the occasional machine-wreckers, would have been the illiterate, unsung tragic heroes who tried to save mankind from itself. Bertrand Russell, indeed, has frequently wondered if this were not the truth of things; he felt, as his hope in Soviet communism dwindled, that "all politics are inspired by a grinning devil," and, as he watched Europe on its way to a Second World War, he speculated that perhaps the death-wish was the best explanation of human history.[33] But if such be the underlying law of the macro-social cosmos, we shall never know it.

A directional law of evolution is not logically impossible. The law of entropy in physical science asserts that for closed systems there is a definite direction that energy transformations will take. A directional law of social change cannot therefore be excluded on purely logical grounds. The law of entropy, however, holds only for closed systems; if there were an influx of energy from other parts of an unlimited universe, a given region might not actually evolve toward thermodynamical equilibrium. And laws of history are beyond our grasp precisely because human initiative, human intervention, upsets any approximation toward a closed social universe. The factor of human creativity corresponds to the influx of energy into the physical system. It makes, moreover, for the unpredictable aspect of historical causation. The discovery of atomic fission, for instance, was not something foreseeable from our laws of social science; it was an unpredictable event, dependent on what happened to be the case with sub-atomic events and on the abilities and interests of a small number of persons.

[33] Bertrand Russell, *The Problem of China*, London, 1922, p. 19. "Freud's 'death wish' may be more or less mythological, but on the whole it affords a better explanation of the present behaviour of Europe than is possible on a purely economic view" ("Two Prophets," *The New Statesman and Nation*, Vol. XIII, 1937, p. 416).

We are once more confronted by the indeterminate aspect of history, the contribution of human individuals, in all its elusive, unresolvable vagueness. A necessitarian law of history may exist, but if so, it does not fall within the domain of humanly constructible laws of social science.[34]

And on this slender foundation, the postulate of interventionism exists. It is a hope of human beings groping in darkness. The necessitarian may hold that all our interventions have been and will be, in principle, predictable, and he might argue that as human beings we are under an illusion of effective intervention in history, that perhaps an unkind god watches us in our futile efforts to fend off Necessity. It may be that the limits of human intervention will gradually become evident. The countless frustrated efforts to contrive perpetual machines finally provided an empirical basis for the law of entropy. Perhaps a repeated failure of schemes for world peace will similarly persuade social scientists that Freud's theory of the innate aggressive drive in man is sound. But, for the present, there is the rare chance to dare to use the interventionist philosophy. The necessitarian has amended Heraclitus and, instead of saying that "man's character is his fate," declares as a principle of social science that "man's social system is his fate." The interventionist works on the hope that men can, under certain conditions, choose their social world. We act in blindness but in the hope that our action takes us toward light.

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CAUSALITY IN THE SOCIAL SCIENCES[1]

GRANTING in substance what we take to be Professor Feuer's principal theses—that metasociological convictions are antecedent (non-logical) conditions of the choice between a "necessitarian" and an "interventionist" mode of social analysis and that "contemporary social science is increasingly giving adherence to an interventionist mode of thought,"—we wish to pursue and to some extent redirect his analysis. For, in addition to the wishes and hopes and fears of social scientists, research results and greater

[34] "As a transcendental entity there might still be a law of sequence, but there could be no way of demonstrating it." Robert H. Lowie, "Evolution in Cultural Anthropology," *American Anthropologist*, Vol. 48 (1946), p. 229.

[1] The writing of this paper was materially facilitated by the author's research association with the Comparative Study of Values in Five Cultures project of the Laboratory of Social Relations, Harvard University. The project operates on a grant from the Rockefeller Foundation, Social Sciences Division.

sophistication in methodology have affected the treatment of the complex of problems associated with theories of social causation. Neither the older evolutionary theories nor the "trait-list" approach have been found satisfactory in ordering anthropological data; classical economic theory has repeatedly failed to be effective in prediction; radical behaviorism has proved inadequate to account for or predict much observed behavior; and up-to-date models of scientific inquiry have steadily replaced the antediluvian constructions of an earlier generation. The consequences of introducing this class of considerations and at the same time a justification for it are found in the resultant modification of social analytic models and rephrasing of relevant philosophical and logical problems.

Several questions that have arisen in connection with Professor Feuer's development of his arguments may be used to amplify. First, it may be asked whether the reported trend to "interventionism" signifies fundamental agreement among social scientists with respect to the character and influence of decisions and other symbolic and psychological entities in human affairs. Second, it may be asked whether "necessitarian" and "interventionist" exhaust the possible and actual models of contemporary social analysis. Third, we may inquire what logical connections there are, if any, between statements asserting or denying that intervention is *possible* (a matter of metaphysics or metalinguistics, depending on the formulation), and inferences drawn from them to the conclusion that intervention is or is not *desirable* (a matter of applied social science and practical ethics), and between these assertions and the conceptions of social causation and prediction associated with them.

1. We have raised these questions, of course, because we wish to propose at least partial and tentative answers. We would wish to distinguish as Professor Feuer has done between those who assert that the course of events cannot be influenced by what we shall refer to as "ideas" or "symbolic entities"—whether decisions, beliefs, hopes, fears, values, or the like—and those who assert that it can. But in addition, the literature of contemporary social science suggests the need for lines of demarcation within the latter class. There is a noteworthy difference between those who believe that intervention is both possible and desirable and those who believe it possible but undesirable or outside the proper scope of social science. And we wish to set off from each other those who characterize ideas as intrinsically unobservable and inward from those who attempt operational definitions of them; those who believe that ideas are such that their influences render the course of future

events unpredictable and uncontrollable from those who hold that ideas are variables in human behavior susceptible at least in principle to scientific formulation; and those who use ideas in monocausal theories to account for all behavior from those who consider symbolic entities one class of variables among others in the determination of behavior. In each of the three latter pairs, the second alternative noted will be the object of interest in the discussion below.

Closely associated with the foregoing is the second point we wish to make, viz., that there is a model of causality for social science analysis, neither necessitarian nor interventionist, which is in fact employed by numerous social scientists—although not necessarily those mentioned by Professor Feuer. This model we take to be logically and formally identical with a currently widely accepted conception of causality in the physical sciences as primarily "uniform association," and which, for the sake of giving the model a name, we shall presumptuously label "scientific causality." Intended as a methodological rather than a metasociological model, scientific causality is conceived as independent of characterizations of symbolic entities, although it may be found to be irrelevant to or inoperative with certain familiar traditional subjectivistic and mentalistic metaphysics but compatible with certain contemporary physicalistic reductions. In addition, no "implications" in the logical sense are thought to follow for programs of intervention or non-intervention in practical affairs.

The ancient determinism-voluntarism fray, to which we believe the necessitarians and interventionists cited by Professor Feuer are the contemporary heirs, we uncharitably read as dependent upon spurious inferences from obsolescent notions of causality and prediction. From primarily existential statements (which are in any case no better than caricatures of scientific causality), normative conclusions have been drawn pertaining to the practical and moral issues involved in programs of social reform and amelioration, administration, and, in general, applied social science and practical ethics. And from the same premises, by the "logic" which transmutes scientific principles into momentous metaphysical events, various unverifiable if "convenient" conclusions have been reached pertaining to the status of the so-called human imponderables. Professor Feuer's exposition of the influence of metasociological commitments on the course of social inquiry may serve us by way of explanation for these non-logical reasonings. But the persistent confusion of metaphysical, methodological, and moral contexts, we submit, interferes seriously with the equally important but logically independent concerns with establishing a working

hypothesis for the role of symbolic entities in human behavior, formulating a principle of social causation, utilizing social scientific knowledge in the solution of practical problems, and discovering how these inquiries are interrelated in a general logic of social science.

2. A logician would be well within his rights to dismiss as irrelevant to an analysis of causality in the social sciences any concern with "ideas," or at best might ask how, if at all, a general principle of social causation is related to that aspect of human affairs which is designated "mental" or "ideaistic" or "symbolic." But recent changes in the social scientific handling of this concept-area may make worthwhile a brief visit to the metaphysical depths, the more so since discussion of ideas has been dragged by the heels into the methodology of the study of man at least since the time of Aristotle.

It cannot be denied that many of the traditional philosophical skeletons continue to rattle about in various branches of the behavioral sciences. But if we look at the main trends in recent research, we see what would up to the beginning of this century surely have seemed an impossible combination, viz., quantitative and other scientific and logical methods being used to study clearly non-material, unabashedly "mental" matters—"values," "morale," "public opinion," "language," "learning," "configurations of culture," and so on. Clyde Kluckhohn, Samuel Stouffer, Paul Lazarsfeld, Alfred Kroeber, Gordon Allport, Clark Hull, Robert Merton, Benjamin Whorf, Roman Jakobson, to select a small sample at random, can by no stretch of the imagination be described as students of the "ineffables" and "imponderables" of traditional mentalism; nor, on the other hand, are they engaged in forging ironclad "laws" which hold men helpless and writhing in their mechnical claws. Granting the differences of viewpoint which we are well aware exist within the sample, we can nevertheless generalize safely that a significant segment of the social scientific fraternity have come to terms with "mentalistic" phenomena by operationistic means. Although there are methodological problems enough and to spare, there are no "perennial problems" to disturb statisticians, empirical researchers, experimental scientists, theorists, or the purest of logical analysts. And in the light of the usual formulations of social causation, we may well ask the Kantian question, how is this possible?

Within the confines of the logic of social science strictly defined, the hypothesized metamorphosis of mentalism could not have occurred. Rather, it is in the metascientific periphery, the practical and concrete as contrasted with the purely formal phases of meth-

odology, that social scientists have met and overcome problems of defining the symbolic entities with which they have had to deal. It would appear that a small measure of metascientific warmth on the coldly logical heights of science does no harm; indeed, not a few substantive social scientific theories of great utility have blossomed out of metaphysical beginnings. But they have not long remained metaphysical. There is a choice-point, once a symbolic entity is given definition and introduced into a theory: if discussion of it moves towards essences, the status of universals, and *a priori* justifications, the very mode of formulating the inquiry will assure in advance the appearance of the insoluble problems of the philosophical tradition; but if discussion moves by way of operational indices towards verifiable hypotheses, the definition and hypotheses belong to metalinguistics, not to metaphysics. The assumption here is that the logical (or nonlogical) character of statements cannot be ascertained from linguistic form or constituent terms but requires knowledge of how the statements are employed in further discourse.

The process by which symbolic entities have been fitted for serious scientific inquiry we take to be the systematic translation of them from a metascientific frame of reference to a metalinguistic one, the discarding of irreducibly unverifiable elements included as part of the process. When symbolic entities are attached to observational or operational indices and thence implanted in directly verifiable or working hypotheses, the too-broad and too-vague question, whether ideas do or do not influence the course of events, is replaced by a concern with the ways in which each individually and operationally defined symbolic entity covaries with other variables, symbolic, biological, geographical, etc., so that prediction of behaviors and events can be made at an optimal level of confidence. It may then be left to scientific research, rather than *a priori* manipulations of definitions, to ascertain whether idealistic constructs have predictive significance in no situations at all, in some situations only, or in all situations in varying modes and amounts. Fragments of unreconstructed metaphysics find their way into the literature, to be sure, but it would appear that the tasks of devising hypotheses and suitable methods and techniques for testing them constitute a distraction of sufficient magnitude to have for the most part turned discussion of "ideas" away from the time-honored channels.

3. To follow through in detail and with precision the hypothesized transition from metaphysical to metalinguistic status would be too ambitious an undertaking for present purposes and would besides require more competence than can be claimed in the sub-

stantive research pertinent to each "imponderable" social scientists have seen fit to ponder. We can then only illustrate briefly the way in which metalinguistic management of symbolic entities restructures the problems of "ideas" vis-à-vis social causality. For the illustration, we turn to the concept "values" and, in particular, to the conduct of the study of values in a six-year interdisciplinary project now approaching completion.[2]

In northwestern New Mexico, there is a semi-arid region given over chiefly to farming and ranching in which five distinct cultural groups have lived for some time in regular contact with each other and in desultory contact with the surrounding larger American community. Even to the untrained eye, the scene presents five distinct "ways of life" representing five distinct value patterns: the Texans, now some 235 strong, came a generation ago out of the southern subculture of the United States; the Mormons perpetuate in their planned, coöperative village of some 230 persons (founded in the 1880's) the vision of Joseph Smith over a century ago in central New York; the remnants, some 45 persons, of a once-strong Spanish American community started in the last third of the nineteenth century are a part of the Spanish-speaking culture spread through the Southwest; and two Indian cultures, each speaking a different Indian language—the Ramah Navaho, now numbering about 650, whose six-sided hogans are scattered over the area settled (or resettled) after Kit Carson's successful campaign against them during the Civil War; and the Zunis, numbering about 3,000, continuing to live in their pueblos, stone-age "multiple dwelling units," after peace was made with the successors of the sixteenth-century Spanish conquistador, Coronado. This five-community area served as a "natural laboratory" for research directed to answering in specific detail the general question: "Why do different value systems continue to exist in five cultures all having to meet similar problems of adjustment and survival in the same ecological area, all having been exposed by actual contact and by stimulus diffusion to each other's value ideas and practices?"[3]

The "reality" of values and of their influence was a working hypothesis of the research, and a definition was suggested to guide field work. Cognizance having been taken of the embarrassment of riches in the treasury of social scientific and philosophic defini-

[2] Identification of the project, in which the writer is a participant, is made in the footnote to the title of this paper.

[3] Clyde Kluckhohn, "A Comparative Study of Values in Five Cultures," in Evon Z. Vogt, *Navaho Veterans: a Study of Changing Values*, Peabody Museum of Harvard University, Papers, vol. XLI, no. 1, Cambridge, 1951, p. viii.

tions of "value" and due acknowledgment having been made of reliance on the principle of convenience, the following definition was proposed:

> A value is a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means and ends of action.[4]

We venture to suggest, without fear of giving offense to its author, that this definition, as it stands, might be "reduced" in short order by any reasonably well-trained analyst. Or, rather, it might be disposed of in the usual manner, were it not for the hindrance and redirection of attention presented by the following circumstance: accompanying the definition and a part of it are detailed explanations of its constituent terms; a list of operational indices attaching "values" to both verbal and non-verbal behavior under the three main headings of "indices of approval and disapproval" (e.g., statements containing the terms "good" or "bad," "right" or "wrong," acts of punishment and reward, etc.), "differential expenditure of effort," and "resolutions of choice-situations"; and a set of dimensions of values. And in the research reports of those who adopted the definition complete with its operational elaborations, there are numerous data and various hypotheses dealing with the influences of values on behavior.

The expression and limits of the influences of values have yet to be made precise, but nonquantitative and statistical methods have been used to advantage for, e.g., the study of the effect upon time and energy allocation of explicit valuations of work and leisure; differential responses of the five cultures to recurrent drought and to the occurrence of deaths; the influence of differential cultural values on land-use; the cross-cultural and intracultural variation of value-orientation profiles.[5] Regular covariations of elements of the complex value systems constructed for the five cultures with such diverse factors as land-settlement pattern, re-

[4] Clyde Kluckhohn and others, "Values and Value-Orientations in the Theory of Action," in Talcott Parsons and Edward A. Shils, *Toward a General Theory of Action*, Cambridge, 1952, p. 395.

[5] The studies referred to are, respectively, Evon Z. Vogt, *The Homesteaders: A Study of Values in a 20th Century Frontier Community*, in press; Clifford J. Geertz, *Death, Drought and Alcohol in Five Southwestern Cultures*, unpublished Values Study ms.; John L. Landgraf, *Land-use in the Ramah Area of New Mexico*, Peabody Museum of Harvard University, Papers, vol. 42, no. 1, 1954; and Florence Kluckhohn, John M. Roberts, and Fred L. Strodtbeck with the assistance of Kimball Romney and Clyde Kluckhohn, "Variations in Value-orientations: a Theory Tested in Five Cultures," in preparation.

ligious organization, ritual and technological knowledge, and techniques of social control and socialization, form the core of a set of generalizations having cross-cultural validity. In short, although the integration of the research results of the "Values Study" is not yet completed, and although the venture pretends to no more than an approximation to a comprehensive social scientific theory of values, there already exists abundant evidence of the fruitfulness of the construct "value" in organizing large quantities of data otherwise without adequate rationale, in accounting for observed behaviors otherwise incompletely explained, and in permitting the formulation of hypotheses interrelating values and cultural, sociological, psychological, economic, and ecological variables tested in the five cultures and susceptible of further testing in other cultures.

While further details of the study of values would no doubt be most interesting, they would take us too far afield from the central point, viz., that numerous social scientists concerned with symbolic entities have disposed of traditional metaphysical puzzles not by ignoring metaphysics altogether, nor by successful "materialistic" reductions of ideas to epiphenomenal status, but by a "physicalistic reduction" which is, of course, totally unrelated to the metaphysical conflict between mentalism and materialism and is rather the very means by which the transformation of "ideas" from inherently unobservable universals to useful scientific constructs has been accomplished. In representing this strain of "modern mentalism" in contemporary social science, half the battle over interpretations of social causation has been won; for the working principle that "ideas have consequences," once disengaged from tender-minded interpretations, is easily dovetailed with a rigorously scientific model of social causation coming increasingly into use.

4. Literally too numerous to mention are the papers and monographs produced by two generations of methodologists devoted to the painstaking clarification of causality in both the physical and social sciences, the formal unification of the conception of causality for all forms of scientific inquiry, and the disentanglement of logical interpretations from the metaphysical misinterpretations of scientific terms in which many physicists and social scientists as well as philosophers have indulged. Expressed in different but equatable terminologies, a model of causality has gained acceptance which is logically independent from metaphysical preferences, moral convictions, and differences in the subject matters of the several sciences. If the term "cause" itself does not appear in the model except incidentally, it may be due in part to the com-

plexity of the logical connections between metalinguistic elements, conventional constructs, and the deductively related general laws and hypotheses asserting invariant and general relations among empirical data (due allowance being made for the invariant error of Planck's constant in quantum mechanics). The latter are commonly identified as the peculiarly causal variety of scientific law, but these refer to substantive hypotheses which are unintelligible without specification of the surrounding methodological and logical rules. In effect, the "causality principle" is a shorthand device by means of which reference may be made to a preferred alternative to teleological Aristotelian "science," that is, to the complex of rules of concept formation, criteria of evidence, assignment of levels of confidence with respect to confirmation and prediction, as well as rules for the deductive ordering of the conventionalistic, logical, and empirical principles of the formal structure of scientific theory. Crudely sketched though it is, this model of causality appears not to contain, as some other models are believed to, non-logical components.

5. It is perhaps not in the spirit of extra-scientific speculation to pin it down to the rigorous rules of inference; and it is granted that the concrete content and practice of science depend as much upon the dubious "logic of discovery" as upon the formally elegant logic of verification. Nevertheless, we cannot fail to note that the logical independence of methodological and scientific statements from metaphysical principles, which presumably imply them, and moral directives, which presumably they imply, follows directly from the rules and conditions of inference. The truth of conclusions, whether they are confirmed hypotheses, conventions, or formalizations from logic, cannot, of course, validate any premises whatsoever; and unless premises are analytically true, which they can hardly be in the case of metaphysical or similar assertions about "the nature of reality," they cannot be established by any means as true. Moreover, if a premise is non-existential—either hypothetical or, by extension, unverifiable altogether either in practice or in principle—it cannot imply an existential conclusion; and also by extension of inferential rules, a non-existential conclusion cannot be warrantably inferred from existential premises. Further, normative conclusions cannot follow from non-normative premises. Only the falsity of the conclusions in valid syllogisms can yield definitive results for the premises; but since metaphysical interpretations are more often than not after-the-fact extensions of scientific statements, this is not likely to occur. To this may be added the condition that the rules of inference hold in any case only when the premises actually do imply the conclusion, but the estab-

lishment of a genuine implicative relation between metaphysical or moral and scientific statements has yet to be accomplished.

It would then seem to follow that the relating of scientific causality in its general form to special problems of social causality requires that additional assumptions be made. If the significance of symbolic entities in human affairs is singled out for attention, the nature of the conclusions that can be drawn respecting the conduct of social science research depends upon the way in which "ideas" are defined. If mentalistic entities are treated as subjective experiences without effects on the course of events, they will, quite obviously, not be made an object of research, whatever model of causality is employed. On the other hand, if "ideas" are defined as intrinsically unobservable universals, it is apparent that they cannot be introduced into a scientific scheme—either the definition of ideas or the scientific model will have to be surrendered, and both ways have been taken in the history of social science. Definitions of "ideas" as more or less observable and as efficacious to the exclusion of all other influences, reversing the extreme materialistic reduction, have been proffered by radical subjectivists and psychological determinists, but it is doubtful that monocausal theories, idealistic or materialistic, are compatible with a scientific model of causality.

Where ideas have been regarded as exclusively intrasubjective but observable, a special introspectionist technique was devised to discover them, and it is still a moot question whether the Titchenerians did or did not employ scientific causality in their experimental psychology. The ontological status of "ideas" in radical behaviorism and historical relativism (the latter we take to be separate from materialism, despite the claims of Marxist theory) is somewhat ambiguous; although ideas are denied independent causal efficacy, they are nevertheless "reduced" by means of hypotheses expressing verifiable covariations of "mental" or "emotional" occurrences with biological and other physical occurrences. It is conceivable that it is only a verbal difference which separates these definitions from "anti-behaviorist" formulations in which ideas are defined as "real" in virtue of their connections with directly observable phenomena. If this is the case, the heated debates between behaviorists and anti-behaviorists center on the issue whether ideas do or do not "really" influence the course of events as independent variables, and where this question is not lost in fresh verbal disputes, it amounts only to a matter of the relative fruitfulness of alternative conventions in the phrasing of social scientific hypotheses. We are disposed to consider this the crux of the matter, and note that on both sides of the issue, the scientific

model of causality can and has been used extensively but not as yet conclusively.

6. Not infrequently, a social scientist who uses the model of scientific causality when he writes *qua* social scientist may, *qua* philosopher, develop a *Weltanschauung* in terms suggested or inspired by his scientific researches, and he may also enter the lists, *qua* citizen or administrator, for or against practical programs of population resettlement, colonial administration, veteran rehabilitation, economic reforms, etc. Yet, the boundaries separating these different orders of discourse from each other seem not to have been violated. At the same time, both metaphysical and moral questions yield to restatements which avoid—though they cannot solve—many of the dilemmas traditionally associated with them.

It seems no longer necessary to be delayed by the question whether men "can" or "cannot" redirect the course of human events, for an operationistic redefinition transfers the entire matter from the metaphysical to the social scientific universe of discourse. The seemingly normative question, whether human values ought to be studied scientifically, has long since been settled in principle and is in practice under way. Moreover, it is possible at least in principle and to some extent in fact to remove or to control interferences with research originating in conscious and unconscious personal and cultural biases by appropriate training; the removal of the effects of service to special interests we take to be more a matter of simple honesty than of education for scientifically objective research.

Not so amenable to resolution are the questions whether social scientists have special competence as such to advise or participate in the administration of programs of social amelioration or whether this lies outside the proper limits of scientific activity and the cognate issue whether social inquiry should be directed to social problems most urgently in need of solutions or be guided strictly and solely by the research interests of pure science. The differences between "action" and "basic" theorists are at present generally settled by practical rather than theoretical means: differences in special abilities, training, individual interests, and opportunity effect a division of labor, such that some social scientists engage in action research and some in basic research, although a few of the more happily endowed are versatile enough to devote their energies to rigorous social scientific study of socially problematic situations for which they propose practical programs of improvement. But the underlying theoretical principles of ethics pertinent to what social scientists, or philosophers, or laymen to

these learned professions, ought to do about the course of human affairs in general continue, as well we know, to be problematic, and may, as so many suspect, remain such as long as they are phrased in general and abstract terms.

It would be excessively optimistic to imagine that full and perfect clarity has been achieved by all those concerned with whether and if so how social scientific knowledge should be used in the interests of human welfare. But as constituent parts of the larger question are restated and resolved, the probability increases that the residual and seemingly irreducibly normative components will in due course yield if not to direct solution then at least to restatement in meaningful terms and to solutions which, if they do not answer the questions as they were originally formulated, may nevertheless provide a satisfactory means of dealing with the problems out of which the questions arose. The too-familiar set of "perennial problems" may then become a dead issue: *Requiescat in pace.*

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ESSENCE AND ACCIDENT

THE notions of essence and accident play important and unobjectionable roles in pre-analytic or pre-philosophical thought and discourse. These roles are familiar, and need no elaboration here. Philosophers cannot ignore them, but must either explain them or (somehow) explain them away. My interest is in explaining them.

If they are taken seriously, the notions of essence and accident seem to me most appropriately discussed within the framework of a metaphysic of substance, which I shall accordingly assume. The account of essence and accident that I wish to set forth and argue for derives very largely from Aristotle, although it is not strictly Aristotelian. Where it differs from Aristotle's account it does so in order to accommodate some of the insights formulated by Locke in his discussion of "real" and "nominal" essences. My discussion is to be located, then, against the background of a substance metaphysic and a realist epistemology. The theory of essence and accident to be proposed seems to me not only to fit the demands of the general philosophical position mentioned, but also to be consistent with the apparent requirements of contemporary scientific development. I wish to begin my discussion with some historical remarks.

The earliest Western philosophers were much concerned with change and permanence, taking positions so sharply opposed that the issue appeared to be more paradox than problem. If an object which changes really changes, then it cannot literally be one and the same object which undergoes the change. But if the changing thing retains its identity, then it cannot really have changed. Small wonder that early cosmologists divided into warring factions, each embracing a separate horn of their common dilemma, the one denying permanence of any sort, the other denying the very possibility of change.

Aristotle discussed this problem in several of his treatises, bringing to bear on it not only his superb dialectical skill but an admirable, common-sense, dogged insistence that some things do maintain their identity while undergoing change. To explain the observed facts he was led to distinguish different kinds of change. A man does retain his identity though his complexion may change from ruddy to pale, or though he may move from one place to another. He is the same man though he become corpulent in middle life or his sinews shrink with age. In these types of change, called *alteration, locomotion, growth,* and *diminution,* the changing thing remains substantially or essentially what it was before changing.

Another type of change, however, was admitted to be more thoroughgoing. To take, for example, an artificial substance, we can say that if a wooden table is not just painted or moved, but destroyed by fire, we have neither alteration, locomotion, growth, nor diminution alone, but *substantial* change. The characteristic mark of substantial change is that the object undergoing the change does not survive that change or persist through it, but is destroyed in the process. The ashes (and gas and radiant energy) that appear in place of the burned table are not an altered, moved, or larger or smaller table, but no table at all. In substantial change its essential property of being a table disappears.

It seems clear that distinguishing these different kinds of change involves distinguishing different kinds of attributes. The basic dichotomy between substantial change and other kinds of change is parallel to that between essential attributes or *essences,* and other kinds of attributes, which may be lumped together as accidental attributes or *accidents.* (Here we diverge rather sharply from at least one moment of Aristotle's own terminology, in ignoring the intermediate category of "property" or "proprium.")

Of the various bases that have been proposed for distinguishing between essence and accident, two stand out as most reasonable. The first has already been implied. If we can distinguish the different kinds of change, then we can say that a given attribute is

essential to an object if its loss would result in the destruction of that object, whereas an attribute is a mere accident if the object would remain identifiably and substantially the same without it. This basis for distinguishing between essence and accident, although helpful heuristically, is not adequate philosophically, for it seems to me that the distinctions among these kinds of change presuppose those among the different kinds of attributes.

The other, more satisfactory basis for distinguishing essence from accident is an epistemological or methodological one. Knowledge of the essence of a thing is said to be more important than knowledge of its other attributes. In the *Metaphysics* Aristotle wrote: ". . . we know each thing most fully, when we know what it is, e.g. what man is or what fire is, rather than when we know its quality, its quantity, or its place. . . ."[1] It is the essence that is intended here, for a subsequent passage explains that: ". . . the essence is precisely what something *is*. . . ."[2] It is perhaps an understatement to say that Aristotle held knowledge of essence to be "more important" than knowledge of accidents, for he later says explicitly that: ". . . to *know* each thing . . . is just to know its essence. . . ."[3] And if we confine our attention to scientific knowledge, Aristotle repeatedly assures us that there is no knowledge of accidents at all,[4] but only of essences.[5]

Aristotle was led to draw an ontological conclusion from the foregoing epistemological doctrine. If some attributes of objects are epistemologically significant and others are not, the implication is that the former constitute the real natures of those objects, whereas the latter can be relegated to some less ultimate category. I must confess that I am in sympathy with the realist position which underlies and justifies such an inference, but to expound it in detail would take us too far afield.

As a biologist Aristotle was led to classify things into genera and species, holding that things belong to the same species if and only if they share a common essence. In remarking this fact we need not commit ourselves to any position with respect to the systematic or genetic priority of either logic or biology in Aristotle's thought. He aparently believed these species to be fixed and limited, and tended to ignore whatever could not be conveniently classified within them, holding, for example, that "the production of a

[1] 1028ª 37–1028ᵇ 2. Quotations are from the Oxford translation.

[2] 1030ª 1.

[3] 1031ᵇ 20.

[4] 1026ᵇ 4; 1027ª 20, 28; 1064ᵇ 30; 1065ª 4. Cf. also *Posterior Analytics*, 75ª 18–22.

[5] 75ª 28–30.

mule by a horse" was "contrary to nature,"[6] a curious phrase. Some modern writers have tended to regard this shortcoming as fatal to the Aristotelian system. Thus Susan Stebbing wrote: "Modern theories of organic evolution have combined with modern theories of mathematics to destroy the basis of the Aristotelian conception of essence. . . ."[7] It seems to me, however, that the fixity of species is a casual rather than an integral part of the Aristotelian system, which in its broad outlines as a metaphysical framework can be retained and rendered adequate to the most contemporary of scientific developments. A not dissimilar objection was made by Dewey, who wrote that: "In Aristotelian cosmology, ontology and logic . . . all quantitative determinations were relegated to the state of *accidents*, so that apprehension of them had no scientific standing. . . . Observe by contrast the place occupied by measuring in modern knowledge. Is it then credible that the logic of Greek knowledge has relevance to the logic of modern knowledge?"[8] But the Aristotelian notion of essence *can* admit of quantitative determination, as is suggested by Aristotle himself in admitting ratio as essence.[9] Hence I do not think that this criticism of Dewey's can be regarded as any more decisive than that of Miss Stebbing.

Having set forth in outline an Aristotelian philosophy of essence and accident, I propose next to examine what I consider to be the most serious objection that has been raised against it. According to this criticism, the distinction between essence and accident is not an objective or intrinsic one between genuinely different types of attributes. Attributes are really all of the same basic kind, it is said, and the alleged distinction between essence and accident is simply a projection of differences in human interests or a reflection of peculiarities of vocabulary. Let us try to understand this criticism in as sympathetic a fashion as we can.

The distinction between different kinds of change, on this view, is subjective rather than objective. We happen to be interested, usually, in some attributes of a thing more than in others. When the thing changes, we say that it persists through the change provided that it does not lose those attributes by whose possession it satisfies our interests. For example, our interest in tables is for the most part independent of their colors. Hence that interest remains satisfiable by a given table regardless of any alteration it may suffer with respect to color. Paint a brown table green, and

[6] 1033^{b} 33. But cf. 770^{b} 9–13.
[7] *A Modern Introduction to Logic*, p. 433.
[8] *Logic: The Theory of Inquiry*, pp. 89–90.
[9] 993^{a} 17–20.

it remains substantially or essentially the same; the change was only an accidental one. If our interests were different, the same objective fact would be classified quite differently. Were our interest to lie in *brown* tables exclusively, then the application of green paint would destroy the object of our interest, would change it substantially or essentially from something which satisfied our interest to something which did not. The implication is that attributes are neither essential nor accidental in themselves, but can be so classified only on the basis of our subjective interests in them. Dewey stated this point of view very succinctly, writing: "As far as present logical texts still continue to talk about essences, properties and accidents as something inherently different from one another, they are repeating distinctions that once had an ontological meaning and that no longer have it. Anything is 'essential' which is indispensable in a given inquiry and anything is 'accidental' which is superflous." [10]

The present criticism lends itself easily to reformulation in more language-oriented terms. That we regard a table as essentially the same despite alteration in color or movement from place to place is a consequence of the peculiar nature and limitations of our vocabulary, which has a single word for tables, regardless of color, but lacks special words for tables of different colors. Suppose that our language contained no word for tables in general, but had instead—say—the word "towble" for brown table and the word "teeble" for green table. Then the application of green paint to a towble would be said to change it essentially, it might be argued, for no towble would remain; in its place would appear a teeble. Or if there were a single word which applied indiscriminately to tables and heaps of ashes, say "tashble," with no special substantive denoting either of them univocally, then perhaps the destruction of a table by fire would not be regarded as an essential change. That which appeared at the end of the process would admittedly be in a different state from what was there at the start, but it would still be identifiably the same tashble. C. I. Lewis regards the difference between essence and accident to be strictly relative to vocabulary, writing: "Traditionally any attribute required for application of a term is said to be of the essence of the thing named. It is, of course, meaningless to speak of the essence of a thing except relative to its being named by a particular term." [11]

I think that for our purpose these two criticisms can be regarded as variants of a single basic one, for the connection between

[10] *Op. cit.*, p. 138.

[11] *An Analysis of Knowledge and Valuation*, p. 41.

human interests and human vocabulary is a very intimate one. It is an anthropological and linguistic commonplace that the concern of a culture with a given phenomenon is reflected in the vocabulary of that culture, as in the several Eskimo words which denote subtly different kinds of snow. In our own culture new interests lead continually to innovations in vocabulary; and surely it is the decline of interest in certain things that leads to the obsolescence of words used to refer to them.

Both variants of this criticism were formulated long ago by Locke, and developed at considerable length in his *Essay*. Locke paid comparatively little attention to the problem of change, but where he did discuss it his treatment was very similar to Aristotle's. Thus we are assured in the *Essay* that: ". . . an oak growing from a plant to a great tree, and then lopped, is still the same oak; and a colt grown up to a horse, sometimes fat, sometimes lean, is all the while the same horse. . . ."[12] The oak ". . . continues to be the same plant as long as it partakes of the same life . . ."[13] and the identity of animals is explained in similar terms. Personal identity is explained in terms of sameness of consciousness.[14] If we ignore the Cartesian dualism implicit in that last case, and if we are not too critical of the reappearance of the term "same" in the explanation of *sameness,* we can recognize these answers to be the Aristotelian ones, for according to Aristotle the soul is the principle of life,[15] the life of a plant is the nutritive soul,[16] that of an animal its sensitive soul,[17] and that of man his rational soul,[18] these souls constituting the substantial forms or essences of the respective substances.[19] On the other hand, in his brief discussion of identity as applied to non-living things, Locke construes it very strictly to apply only to things which ". . . vary not at all. . . ."[20] But the following passage has a characteristically Aristotelian flavor: "Thus that which was grass to-day, is to-morrow the flesh of a sheep; and within a few days after becomes part of a man: in all which, and the like changes, it is evident their real essence, i.e. that constitution, whereon the properties of these several things depended, is destroyed, and perishes with them."[21]

[12] Bk. 2, Ch. 27, §3.
[13] *Ibid.*
[14] Bk. 2, Ch. 27, §8, §9, §10, §16, §17, §23.
[15] *De Anima,* 402^{a} 6, 415^{b} 8.
[16] 432^{a} 29, 434^{a} 22–26; cf. also *De Plantis,* 815^{b} 28–34.
[17] 432^{a} 30.
[18] *Politics,* 1332^{b} 5.
[19] *De Anima,* 412^{a} 20, 412^{b} 13, 415^{b} 10.
[20] Bk. 2, Ch. 27, §1.
[21] Bk. 3, Ch. 4, §19. But cf. Bk. 3, Ch. 6, §4, §5.

Despite this partial similarity of their views, the bases for distinguishing between the essential properties and other properties of a thing are very different for Locke than for Aristotle. For Aristotle, the distinction is twofold: first, the essential properties of an object are those which are retained by it during any change through which the object remains identifiably the same object; and second, the essential properties of an object are most important in our scientific knowledge of it. For Locke, on the other hand, the *real* essence of a thing is a set of properties which *determine* all the other properties of that thing.[22] Since all other properties depend on its real essence, *any* change in an object entails a change in its real essence. Hence for Locke the essential properties of an object are *not* retained by it during any change. This view is very different from Aristotle's, on which the accidents of a thing are not bound to its essence but can change independently of it. The epistemological difference is equally striking. Whereas for Aristotle all scientific knowledge is knowledge of the essence, for Locke there is *no* knowledge of the real essences of things.[23]

Locke was more interested in what he called "nominal essences," which are more nearly analogous to the Aristotelian notion of essence. Our idea of a particular substance, according to Locke, is a complex idea composed of a number of simple ideas which are noticed to "go constantly together," plus the notion of a substratum "wherein they do subsist."[24] A general or abstract idea of a sort or species of substance is made out of our complex ideas of various particular substances that resemble each other by leaving out "that which is peculiar to each" and retaining "only what is common to all."[25] Such an abstract idea *determines* a sort or species,[26] and is called a "nominal essence,"[27] for "every thing contained in that idea is essential to that sort."[28]

The properties contained in the nominal essence of a thing can be distinguished from the other properties of that thing on the same basis as that on which the Aristotelian essence is distinguished from accidents. In the first place, a particular substance of a given species can change with respect to some property whose idea is *not* included in the nominal essence of that species, and will continue to be recognizably the same thing; whereas it must be re-

[22] Bk. 3, Ch. 3, §15.

[23] Bk. 3, Ch. 3, §15, §17, §18; Ch. 6, §3, §6, §9, §12, §18, §49; Ch. 9, §12; Ch. 10, §18.

[24] Bk. 2, Ch. 23, §1.

[25] Bk. 3, Ch. 3, §7.

[26] Bk. 3, Ch. 3, §12.

[27] Bk. 3, Ch. 3, §15.

[28] Bk 3, Ch. 6, §2.

garded as a quite different thing if it changes with respect to some property whose idea *is* included in the nominal essence.[29] And in the second place, the nominal essence is more important in knowledge than other properties. To have knowledge of a thing is to know what *sort* of thing it is, and to know the nominal essence is to know the sort. Locke says, moreover, that the leading qualities of a thing, that is, the most observable and hence, for Locke, the most knowable, are ingredient in the nominal essence.[30] Finally, it is argued in the *Essay* that knowledge of nominal essences is required if we are ever to be certain of the truth of any general proposition.[31] Since Locke's nominal essences play so similar a role to that of Aristotle's essences, Locke's arguments intended to prove their subjectivity and relativity to human interests and vocabulary can be interpreted as applying to Aristotle's notion as well as his own.

One fairly minor difference should be noted before going on. Since Locke's nominal essences are abstract *ideas,* they are immediately subjective in a way that Aristotle's essences are not. But that difference is not decisive, for substances may well have objective properties that nominal essences are ideas *of,* or objective *powers* that correspond to them exactly.[32]

Locke urges that essences are subjective in a less trivial sense. Since they are "inventions"[33] or the "workmanship"[34] of the understanding, different persons in fashioning abstract ideas which they signify by the same term can and do incorporate different simple ideas into them. Acts of choice or selection are involved here, and people do make different choices, as proved by the disputes that so frequently arise over whether particular bodies are of certain species or not.[35]

That essences are relative to vocabulary is argued by Locke in terms of an example: "A silent and a striking watch are but one species to those who have but one name for them: but he that has the name watch for one, and clock for the other, and distinct complex ideas, to which those names belong, to him they are different species."[36]

That the ". . . boundaries of species are as men, and not as

[29] Bk. 2, Ch. 27, §28.
[30] Bk. 3, Ch. 11, §20.
[31] Bk. 4, Ch. 6, §4.
[32] Bk. 2, Ch. 23, §7.
[33] Bk. 3, Ch. 3, §11.
[34] Bk. 3, Ch. 3, §12, §13, §14.
[35] Bk. 3, Ch. 3, §14; Ch. 6, §26, §27; Ch. 9, §16; Ch. 10, §22; Ch. 11, §6, §7.
[36] Bk. 3, Ch. 6, §39.

nature, makes them. . . ,"[37] proved by the verbal disputes already referred to, is explained by the fact that since we have ". . . need of general names for present use . . ."[38] we ". . . stay not for a perfect discovery of all those qualities which would best show us their most material differences and agreements; but we ourselves divide them, by certain obvious appearances, into species. . . ."[39] Nominal essences are made for *use*, and different intended uses or interests will determine different essences. Even the *noticing* of similarities between distinct particulars is relative to our interest in them, so our selection of simple ideas for inclusion in a nominal essence is relative to such interests. These determining interests are not scientific, for as Locke observed, ". . . languages, in all countries, have been established long before sciences."[40] The situation is rather that the terms of ordinary discourse ". . . have for the most part, in all languages, received their birth and signification from ignorant and illiterate people. . . ."[41] And for the purposes or interests of those practical people, the properties selected by them as essential to the objects they deal with are adequate enough. For "Vulgar notions suit vulgar discourses; and both, though confused enough, yet serve pretty well the market and the wake."[42]

Now do these arguments succeed in establishing that the distinction between essence and accident is subjective rather than objective, that is, relative to human interests and vocabulary?

I think that the objections are not utterly destructive of the Aristotelian doctrine, although they do call attention to needed modifications of it. Locke's case, it seems to me, depends upon his distinction between real and nominal essences, and his belief that real essences are unknowable. But his doctrine that real essences cannot be known flows from two peculiarities of his philosophy, which I see no reason to accept. One of the bases for his belief that real essences are unknowable is his view that the only objects of our knowledge are the ideas that we have in our minds.[43] Locke's other basis for his belief that real essences are unknowable is his doctrine that experiment and observation yield only ". . . judgment and opinion, not knowledge. . . ."[44] Here the term "knowledge" is reserved for what is *certain*.

[37] Bk. 3, Ch. 6, §30.
[38] *Ibid.*
[39] *Ibid.*
[40] Bk. 3, Ch. 6, §25.
[41] *Ibid.*
[42] Bk. 3, Ch. 11, §10.
[43] Bk. 2, Ch. 1, §1.
[44] Bk. 4, Ch. 12, §10; cf. also Bk. 4: Ch. 3, §28.

I would reject these two doctrines on the following grounds. The first of them, that knowledge is only of ideas, is the germ of scepticism. Locke's premisses lead necessarily to Hume's conclusions, and the partial scepticism we find explicitly set forth in Locke is but a fragment of the complete scepticism that Hume later showed to be implicitly contained there. It seems to me that if a philosophy denies the very possibility of scientific knowledge, then so much the worse for that philosophy. As for reserving the term "knowledge" for what is certain, that usage has but little to commend it. It seems more reasonable to accept the results of experiment and observation, although probable rather than demonstrative, as knowledge nonetheless.

It must be admitted that the doctrine of the unknowability of real essences was not an unreasonable conclusion to draw from the relatively undeveloped state of science in Locke's day. For chemistry, at least, if we can believe what is said of it in the *Essay*, was in a very bad way in the seventeenth century. Locke tells us of the "sad experience" of chemists ". . . when they, sometimes in vain, seek for the same qualities in one parcel of sulphur, antimony or vitriol, which they have found in others. For though they are bodies of the same species, having the same nominal essence, under the same name; yet do they often, upon severe ways of examination, betray qualities so different one from another, as to frustrate the expectations of very wary chemists." [45]

Contemporary science, however, presents a quite different picture. Locke characterized the (allegedly unknowable) real essences of things as the ". . . constitution of their insensible parts; from which flow those sensible qualities, which serve us to distinguish them one from another. . . ." [46] Now modern atomic theory is directly concerned with the insensible parts of things. Through the use of his Periodic Table, interpreted as dealing with atomic number and valency, ". . . Mendeléev was enabled to predict the existence *and properties* . . ." of half a dozen elements whose existence had not been previously known or even suspected.[47] And other scientists have subsequently been able to make similar predictions. Modern science seeks to know the *real* essences of things, and its increasing successes seem to be bringing it progressively nearer to that goal.

It must be granted that Locke's distinction between real and nominal essence is a helpful one, even though it is not absolute.

[45] Bk. 3, Ch. 6, §8.

[46] Bk. 3, Ch. 3, §17.

[47] J. D. Main Smith, in the *Encyclopaedia Britannica*, 14th Edition, 1947, Vol. 17, p. 520 (my italics).

The construction of nominal essences is usually relative to practical interests, and the ordinary notion of the essence of a thing is relative to the words used in referring to it. I think that Locke (and Dewey and Lewis) are correct in that contention. Surely different interests lead different people to classify or sort things in different ways, and thus to adopt different nominal essences, the more permanently useful of which receive separate names in ordinary language. Thus it is that: "Merchants and lovers, cooks and taylors, have words wherewithal to dispatch their ordinary affairs. . . ."[48]

The distinction, however, is not absolute. Not every interest is narrowly practical. The interest of the scientist is in knowledge and understanding. The scientist desires to know how things behave, and to account for their behavior by means of explanatory hypotheses or theories which permit him to predict what will occur under specified conditions. He is interested in discovering general laws to which objects conform, and the causal relations which obtain among them. The scientist's sorting or classifying of objects is relative to this interest, which is not well served by classifying things on the basis of properties which are either most obvious or most immediately practical. It is better served by classifying things in terms of properties which are relevant to the framing of a maximum number of causal laws and the formulation of explanatory theories. Thus a foodstuff and a mineral source of aluminum, common salt and cryolite, are both classified by the chemist as sodium compounds, because in the context of modern chemical theory it is this common characteristic which is most significant for predicting and understanding the behavior of these substances. In the sphere of scientific inquiry, the distinction between real and nominal essence tends to disappear. The scientist's classification of things is intended to be in terms of their *real* essences. And here, too, the process is reflected in vocabulary, not necessarily or even usually in that of the man in the street, but rather in the technical jargon of the specialist.

The essences which science seeks to discover, then, are real essences rather than nominal ones. Since the arguments for subjectivity or relativity to interest or vocabulary were concerned with nominal rather than real essences, they simply do not apply to real essences as either Locke or Aristotle conceived them.

In one passage of his *Essay*, though, Locke does make the further claim that even a real essence relates to a sort and supposes a species.[49] But on Locke's own account of real essence, the real es-

[48] Bk. 3, Ch. 11, §10.
[49] Bk. 3, Ch. 6, §6.

sence of a particular must be that set of its properties on which all of its other properties depend. And that can be investigated independently of any sorting or classifying we may do—although once its real essence is discovered, that will determine how we should classify it scientifically if the occasion for doing so arises.

At this point let me indicate the direction in which I think the Aristotelian doctrine of essence and accident might well be modified. Aristotle definitely held that there could be no scientific knowledge of accidents,[50] but contemporary science would admit no such limitation. It seems to me that both Locke's and Aristotle's views about unknowability should be rejected. Contrary to Locke, I should hold that real essences are in principle knowable, and contrary to Aristotle, I should hold that non-essential or accidental properties can also be objects of scientific knowledge.

It seems to me also that neither Locke nor Aristotle gives a satisfactory account of the relationship between essence and accident. For Locke, all (other) properties of a thing depend on its "real constitution" or real essence[51]; but it is not clear whether the dependence is supposed to be causal or logico-deductive. The former is obviously the more acceptable doctrine. Aristotle, on the other hand, held that some properties of a thing, namely, its accidents, do not in any way depend upon its essence. I think that Locke's view, understood as asserting a causal dependence of accident on essence, is the more plausible one, and that the Aristotelian doctrine ought to be so modified as to accord with that of Locke in this respect.

Now if both essences and accidents are scientifically knowable, on what basis are they to be distinguished from each other? I suggest that the epistemological or methodological distinction is still valid. For example, common salt has many properties, some more obvious than others, and some more important than others relative to different practical interests. The scientist singles out its being a compound of equal parts of sodium and chlorine as its essential nature. In doing so he surely does not mean to imply that its chemical constitution is more easily observed than its other properties, or more important to either cook, tailor, merchant, or lover. He classifies it as sodium chloride because, within the context of his theory, that property is fundamental. From its chemical formula more of its properties can be inferred than could be from any other. Since the connection is causal rather than logical, the inference from essence to accident must make use of causal law

[50] 1064^{b} 30–1065^{a} 25.
[51] Bk. 3, Ch. 3, §18.

premisses or modes of inference as well as strictly logical ones. Hence to derive conclusions about *all* accidental properties of a substance, we should need to know both its real essence and all relevant causal laws. That is an ideal towards which science strives, rather than its present achievement, of course. To the extent to which one small group of properties of a substance can serve as a basis from which its other properties can be causally derived, to that extent we can be justified in identifying that group of properties as its real essence. This view, it should be noted, is in agreement with Aristotle's doctrine that the definition of a thing should state its essence,[52] and that definition is a scientific process.[53]

There is a certain relativity implied in this account, although it is quite different from those previously discussed. Our *notion* of what constitutes the real essence of a thing is relative to the science of our day. Centuries hence, wiser men will have radically different and more adequate theories, and their notions will be closer approximations than ours to the real essences of things. But it will still be the real essences of things that are destined to be known by Peirce's ultimate community of knowers.

There is one other and more radical sense of accident that I would agree to be relative. Each separate science is concerned with only some of the properties or aspects of things which it studies. Those left out will be accidental relative to the special science which ignores them. They will not be derivable from what that science considers to be the real essences of those things, although a different special science might be much concerned with them, and even include them in *its* notion of the thing's real essence. But as (and if) the sciences become more unified, no properties of a thing will be wholly accidental in this sense, and all will be causally derivable from the real essence.

In closing, I should like to refer once again to the topic of change. If all of a thing's properties depend on its real essence, then it would seem to follow that every change is an essential one. In my opinion, that unwelcome conclusion can be evaded in two ways. In the first place, with respect to common-sense, practical usage, our ordinary sortings will continue to be based on nominal rather than real essences, so that changes can continue to be classified as accidental or essential in the traditional way. And in the second place, with respect to scientific usage, we can say the following. The real essence of a thing will consist very largely of powers or, in modern terms, dispositional properties. An es-

[52] 91[a] 1, 101[b] 21, 38.
[53] 1039[b] 32.

sential change in a thing will involve the replacement of some of its dispositions or powers by other dispositions or powers. But a change which is non-essential or accidental would involve no such replacement; it would rather consist in differently actualized manifestations of the same dispositional property or power. Unfortunately, lack of space prevents an adequate development of this suggestion.

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ESSENCE, ACCIDENT, AND SUBSTANCE

PROFESSOR Copi has given us a fine analysis and comparison of Aristotle and Locke on essence and accident. For this part of Mr. Copi's paper I have nothing but admiration, and, though I shall make some additions, I shall not hesitate to build my argument on the historical base he has elucidated. I cannot, however, accept the suggestions which Mr. Copi offers in the last three or four pages of his paper, and my contribution to this symposium will consist mainly of a presentation of reasons for rejection of these suggestions, plus a few counter-suggestions of my own, which I shall have but scant space to defend.

To facilitate my argument, I state summarily the four general attitudes toward the nature of essence and accident which I find presented in Mr. Copi's paper:

(1) The distinction between essence and accident is ontological, irreducible, and necessary to an adequate understanding of nature.

(2) All attributes of natural objects are equally essential, because tied rigidly to the nature of the object by causal connections. Any distinction between necessary and accidental attributes is heuristic only and parallel to the choice open to a mathematician of what shall be selected as axiom and what as theorem.

(3) The distinction between essence and accident is a provisional one, necessary and appropriate to the present state of our knowledge, and as such a perfectly legitimate part of the conceptual equipment of empiricism. But it is a basically eliminable distinction which will progressively disappear as our knowledge of nature approaches completeness and perfection.

(4) The distinction between essence and accident is dependent solely on the interests and convenience of those who make it. Any

characteristic is essential, for us, if it is important for the satisfaction of our needs.

Position (4) Mr. Copi rejects for reasons which I regard as valid. I shall therefore not discuss it. Positions (2) and (3) are not independent, and call for a bit of comment. To adopt (3) is to adopt (2), so far as the purely ontological implications of these views is concerned, but there is an important difference between them. (2) is the basic assumption of classical rationalism, best typified by the philosophy of Spinoza, which eschews all assistance from the senses in its investigation of the real. (3) represents a compromise between rationalism and empiricism. Thus we can well imagine a scientist or philosopher of science arguing that though reality is determined through and through, and hence offers no ontological ground for the distinction between essential and accidental characteristics, man, in learning to deal with nature in the absence of a full understanding of the real, has had to rely on empirical rules of thumb for the recognition of natural objects and the prediction of their behavior. Such rules devolve on a realization that some of the readily observable characteristics of things are more stable than others and more reliable as clues to the behavior of the objects possessing them in the presence of other objects. Our scientist or philosopher might then go on to assert that it is unlikely that these empirical rules of thumb will ever be completely eliminated from the laboratory and observational phases of scientific investigation, because it is upon them that we rely in distinguishing a microscope from a spectroscope or a crude sample of iron from one of copper. But, though this is true, the ultimate understanding of nature at which the scientist aims can find no place for accidental properties, and hence the latter must be regarded as heuristically valuable, even necessary, at those points where scientific practice must rely on the perception of gross objects, but, because theoretically unjustifiable, not to be incorporated into science's ultimate product, knowledge of the real.

It is (3) that, in his concluding pages, Mr. Copi suggests we adopt. It is to a discussion of (3) that I shall hence proceed; but it is to (1) that I shall return as a base for my own positive suggestions. I hope to be able to show that (3) is an unstable and inconsistent compromise position, and that hence, once (4) has been rejected, we must settle for either (1) or (2); unless, of course, someone other than Mr. Copi or myself has another distinct and superior position to offer.

If Mr. Copi's concluding suggestions incorporate a confusion, then he has an illustrious predecessor and companion in confusion.

I have long been impressed by the fact that Locke, in his application of the term "substance," falls naturally into the usage of common sense and Aristotle. He speaks of gold, wood, and flesh as substances, and talks of their creation and destruction in the natural course of events. For this usage he offers neither apology nor defense, despite the fact that he was surely acquainted with the Cartesian definition of substance, a definition obviously incompatible with his own use of the term. As Mr. Copi has shown, when Locke is speaking of the nominal essence he has as a pattern the Aristotelian distinction between kinds of things. Indeed, so far as what Locke took to be the observable facts of nature are concerned, the Aristotelian position results in a situation strikingly like that described by Locke in the *Essay*. If knowledge is to be constituted by what can be taken in through the senses, then all one can do is observe and formulate empirical rules of thumb descriptive of tendencies of objects of certain kinds to display certain qualities and to behave in certain ways in the presence of other identifiable objects. Even if Aristotle's intuitive knowledge of essences were injected into Locke's description of empirical knowledge, no significant change would be introduced into the latter, because knowledge of essences cannot displace empirical rules of thumb so far as anticipation of the spatio-temporal distribution of qualities in our world is concerned. For Aristotle, too, a knowledge of particulars can be only historically descriptive and probably predictive.

But when Locke treats of the real essence, he is the somewhat sceptical spokesman for the new science. If what makes gold gold is a particular pattern of motion of its small parts, then the *substance* of gold is not different from the substance of wood or flesh, being distinguishable therefrom only in terms of the spatial distribution of its particles and their respective states of motion. This is a distinction, to be sure, but not a distinction of substance from the new scientific point of view. Locke did not draw this conclusion explicitly, of course, but I can scarcely doubt that he was aware of the arguments of Descartes and his followers establishing it, and of the role it played in Newton's physics.[1] What Locke apparently did was decide to retain his usage of the term "substance," applying it to such modifications of matter as are evinced in gold, wood, etc. It is this which makes Locke's real essence so "brittle," as Mr. Copi has noted. If the real essence is to designate just that state of motion and distribution of par-

[1] This particular point has nothing to do with the dispute between the Newtonians and Cartesians over the definition of material substance. Both sides granted the universal sameness of matter.

ticles which produce the various properties gold displays, then any change in these properties in effect reports a change in the real essence, which can only be interpreted as destruction of the "substance" gold. Locke could have followed the practice of the rationalists, designating gold, etc., not substances, but modes of a primary substance. One can only speculate about his reasons for the choice he made. I suspect that he was motivated both by his deep suspicion that all of science's efforts to discover the real essence would come to naught, and by a more logical qualm about raising to a position of prime ontological importance a supposed substance that could be conceived only confusedly, if at all. Be that as it may, Locke's real essence and the meaning of "substance" it implies have a different origin and imply a different ultimate philosophy than do his nominal essence and his explicit use of the term "substance."

It may be worth noting here the fundamentally opposed characters of Aristotle's matter and that of the new science. Aristotle's matter is the source of being, but not of intelligibility. To analyze an entity into its material components is to lose its essence. Modern science's matter, on the other hand, is the most intelligible of natural principles. Locke is simply reflecting the empiricist's hesitancy to take the leap the rationalist did to an *a priori* knowledge of material substance, while at the same time he is unwilling to categorically reject the possibility of acquiring such knowledge by empirical means. Locke is not in the Aristotelian camp, despite the similarities between his position and that of Aristotle that Mr. Copi and I have noted, because he cannot see his way to claiming knowledge of the Aristotelian essence; nor is he in the camp of modern science, because he is no better able to argue a possible knowledge of the scientist's matter. Yet where he grasps at straws, he prefers the straws that float on modern waters.

Mr. Copi would adapt the insights contained in Locke's discussion of real and nominal essences to the uses of common sense and modern science, by discussing them "against the background of a substance metaphysic and a realistic epistemology" (p. 706). Quite a number of different and mutually exclusive modifications of Locke could follow from such a program, depending on what substance metaphysic we adopted and how "realistic" we made our epistemology. *Some* restrictive definition of the empirically observable or knowable is required if empiricism is to have any definite meaning. Locke gave his definition, and it led him into a series of impasses. Mr. Copi thinks these might be avoided by adopting the assumption that "real essences are in principle know-

able" (p. 717). He does not say "observable," but I assume he means at the least deducible from what is observable, else his prior reference to a "realistic epistemology" would have no significance. His reference to a "substance metaphysic" must also be taken into account, and it would probably be agreed that it is the function of a metaphysic to introduce elements that are not strictly observable, or grounds that enable reason to pass from what is observable to what, strictly, is not. Mr. Copi's program, though undeveloped, is clear thus far: He would adopt such a metaphysic and such an epistemology as would render Locke's "real essences" *and* Aristotle's "accidents" "in principle" or "scientifically" knowable (p. 717). I question the logical consistency of such a program, for the following reasons.

Aristotle's distinction between accidental and essential attributes is inseparable from his conception of the role of chance in nature. Chance obtains in Aristotle's world because the latter is composed of a plurality of kinds of things whose behavior is partially dictated by the nature of each, partially by their mutual interdependencies and interactions. Each thing has its own peculiar essence which is sufficient to guarantee a core of essential attributes so long as it remains that kind of thing, but insufficient to secure its indefinitely continued existence or its possession of another set of attributes called "accidental." There being no all-pervading essence underlying all kinds of things, there is no rational principle by which the behavior of all things is determined; and because what is rationally determinable is what is derived immediately from the essence of a thing, what happens by reason of external[2] coercion is irrational and unpredictable except by an empirical logic of probabilities. If Mr. Copi would make Aristotle's accidental attributes knowable in Aristotle's sense of "knowable," that would be to deny that they were accidents. Mr. Copi recognizes this. He has in mind another sense of "knowable" more in accord with the modern one of "knowable to a high—or increasing—degree of probability." Further, it is this latter sense of "knowable" that he would apply to the real essence. I find a crucial ambiguity here. To make it evident, I shall refer to another of Mr. Copi's remarks. On page 717 he says that it is unclear in Locke whether the dependence of properties of a thing on the real essence is causal or logico-deductive, and adds that the former is the more acceptable doctrine. Just what are the grounds

[2] I use the word "external" in a non-spatial sense. Because Aristotle admits of a compounding of essences in natural entities, the coercion may actually have its source within the entity as a conflict between several of its component substances.

which Mr. Copi would have to invoke to make this distinction between the causal and the logico-deductive valid? There is a common distinction between deduction as a "movement of thought" and causation as an ontological transfer of an influence from one object to another, but there must be some manner of correlation between causation and deduction if knowledge of the essence is to yield information about properties determined by the latter. The only relevant sense of "causal" that produces a sharper and more fundamental distinction between it and the logico-deductive is that derived from the critical analysis of Hume. But to adopt this sense of causal is to accept just those elements of classical empiricism which Mr. Copi has characterized as "containing the germs of scepticism." I feel quite certain that Mr. Copi has arrived at his distinction in some such fashion as this: There is an ontological causal relation between the real essence and all the properties displayed by any object exhibiting that essence, and this relation would justify deduction of properties from knowledge of the essence *if* we had adequate knowledge of the latter. But we do (or may) not have adequate knowledge of the essence (which is not to say that it is unknowable) and so we must distinguish between the ontological causal relations which we assume to be present and such logico-deductive relations as we establish on what knowledge we have, or think we have, of the essence. In a precisely similar manner, Mr. Copi has more explicitly distinguished between the real essence as ontological and as such exclusive of accidental properties, and our knowledge of the real essence, which, because problematic and incomplete, does not obviate the distinction between essential and accidental properties.

In the former case I think the distinction is valid, in the latter case not. As I have already suggested, Locke's real essence is better interpreted as a mode of a common substance. What makes complete knowledge of it, if attainable, deductively adequate is not our knowledge of *it*, but of the laws that determine the behavior of this common substance. (Mr. Copi seems to recognize this in saying that ". . . to derive conclusions about *all* accidental properties of a substance, we should need to know both its real essence and all relevant causal laws" (p. 718).) Within this conceptual frame, I find the rationalist's conclusion that knowledge of mode is subsequent to knowledge of substance irrefutable. How can *any* conclusion be drawn from knowledge of the disposition of "the insensible parts of things," unless we know the way in which these parts work upon one another? The only way I can think of is through bare empirical correlation, Humean fashion, but not only does this introduce "the germs of scepticism," but, fol-

lowing Hume, there could be no talk of *insensible* parts of things. The point is that the *desideratum* which Mr. Copi sets up for knowledge demands a good deal more than knowledge of real essences as he or Locke define the latter. Perhaps this will be seen more readily if we consider the fact that a large part of scientific knowledge accrues from the study of the effects of one kind of object upon another. A property which an object develops in the presence of another object, but does not display in the latter's absence, can be essential (a better designation would be "non-accidental") only in a very special sense which is not difficult to define on an Aristotelian base, but highly questionable within the conceptual framework Mr. Copi has to offer. For Aristotle, it is a potency, and need not be actualized to exist as such. Mr. Copi introduces it in his last paragraph under the Lockean term "power" and the modern "dispositional property." I submit that these expressions are employed quite appropriately when the nominal essence is under discussion, but that they do not bear any consistent meaning if applied to the real essence, since either knowledge of such "powers" is knowledge of the ways in which the "insensible parts" of the object can be reconstituted under given external conditions, in which case I maintain that knowledge is really of the common substance; or it is nominally definitional, being merely a notice, so to speak, that a given name is appropriately applied despite certain changes in the observable properties of a thing, if these changes take place under certain recognizable environmental conditions.

To summarize: The nominal essence is first used to "fix" a kind or species definitionally in terms of observable properties, and among the latter may be properties that come and go under specifiable alterations of the properties of the environment. Then by a questionable transition these properties definitive of the kind are attributed as causal products to a real essence indwelling in the kind in the form of a "composition of insensible parts." The transition is questionable only if this real essence is thought of as something more than a sort of eddy in the total disposition of the parts of matter—i.e., as something "real and independent," causally active in its own right, rather than merely through the temporary fact of its occurrence as a fragment of the total pattern of matter in space.

My general objection to Mr. Copi's set of suggestions can now be stated more precisely: If one adopts a set of ontological assumptions which obviate the distinction between accidental and essential by making all attributes necessary attributes of a basic substance (and this is what I have argued Mr. Copi's suggested

assumptions really do), then any non-ontological distinction between essential and accidental characteristics must be grounded not in the provisional nature of our knowledge of that basic substance, but in a totally different provisional classification of kinds of things according to nominal essences. The "real essence" of a kind drops out of the picture, because it, in turn, is determined by a nominal essence, it being only the latter that fixes limits within which we can appropriately say that a thing of this kind exists, and beyond which we must say that it has ceased to exist. The nominal essence and the distinction between essential and accidental attributes which it incorporates may still be very useful, or even indispensable, to science, but that increase in insight, which Mr. Copi would regard as evidenced through passage from the nominal essence to knowledge of the real essence, is actually evidenced by passage from the nominal essence to knowledge of a substance generic to all kinds of things.

For my part, I share with Mr. Copi the feeling that the essence-accident distinction is important both for ordinary experience and for science. But I would take it more seriously than he does, granting it ontological import and denying that the recent tendency toward unification of the sciences necessarily implies a rejection of the distinction. As I have already commented, the outcome of placing the distinction in question "against the background of a substance metaphysic and a realistic epistemology" is by no means unique, because a great many different interpretations can be placed upon "substance metaphysic" and "realistic epistemology." About all that is certain is that the Humean interpretation of experience and knowledge is being denied. While I cannot claim exclusive rights for any definition of these terms I have to offer, I do feel that the realistic epistemology implied by Mr. Copi's conclusions is pretty far removed from most epistemologies that make claim to that title, and much further removed than it need be. For example, what he would claim to know ultimately, the "real essences" of things, are very much unlike the things we think we are acquainted with through experience, and, if my criticism is cogent, what he should claim to know, the laws descriptive of the nature of a universal substance, is even more different. Furthermore, I am deeply suspicious of the analogy of the scaffolding. I always suspect that distinctions and assumptions that have to be made to further an argument or an investigation cannot later be eliminated without damage to the conclusions thereby attained. If to deal with the problem of change philosophers have found it necessary to distinguish between essential and accidental attributes, then the distinction can be deleted from our ontology only

on condition that change also be excluded therefrom, and, had I the space available, I would argue that this is just what does happen when such a position as Mr. Copi is recommending is developed with logical rigor. He is evidently embarrassed by just this possibility in his brief return to the problem of change in his last paragraph. The solution which he sketches there for scientific usage is not available to him if, as I have argued, he cannot assimilate "powers" or "dispositional properties" to the real essence. By his own account, Locke's real essence cannot survive change of *any* of its attributes, and I cannot see that he has offered us an interpretation of the real essence that differs in any significant way from that of Locke.

A realistic epistemology, as I would interpret it, would demand that no element that seems clearly presented to us in ordinary experience should be totally excluded from our ontology. It may be altered therein; we may find various explanations for it, but no explanation is to be tolerated that is an "explaining away." If, then, the essence-accident distinction is epistemologically justified, it must be incorporated in some form into our ontology. If in experience we are confronted with objects that have a stability through change of some of their evident qualities, if, indeed, as seems to me evident, our experience is almost exclusively of such objects, despite the claims of classical empiricism, then our ontology should be constructed after the pattern of such objects. Now, so far as I can see, a world made up of objects similar to those we encounter in experience must be characterized by a degree of indeterminacy. Strict determinism has the effect of negating the ontological reality of discrete objects, for each is seen as merely the node of an indefinite set of causal influences impinging on it from environing regions. A discrete object that is also a real object and not merely a provisionally selected and named set of localized qualities, or localized effects of a converging set of causal influences, must be granted a modicum of existence in its own right; that is to say, an ability to survive and influence other objects. But the survival of one such object in a community of similar objects which influence one another causally, is not possible without a degree of flexibility on the part of each object, unless their mutual relations result in a stalemated situation within which nothing happens at all. This is simply to say that as long as an object survives within any unstable situation it must suffer change, and so its lack of rigidity, quite the reverse of being a sign of any deficiency in reality, is a condition of its survival. This in turn implies that such an object must be so conceived that some of its properties are distinguished from others as "accidental"—i.e., in-

duced in it by environmental influences rather than following directly from its own nature. However, it must not be supposed that such properties are "externally attached," or unrelated to the object's internal nature. They evince the object's *own* response to such influences, and in this sense flow from its essential nature. They can be accidental only in the sense that they are responses of the object to situations that are not themselves essential to the object's existence.

Even a superficial glance at this abbreviated sketch shows that a number of changes have been made in Aristotle's distinction between the accidental and the essential, and that yet other adjustments will be required. Aristotle's dictum that essence is dependent on matter for existence is reflected here in a requirement that no object be conceived as independent of other objects constituting an environment. The result is something like the modern "field" concept, with one important difference. An object is not to be conceived as merely a localized set of properties of a field. Objects are primary, the field secondary. Since objects are created and destroyed, regularities in the boundary conditions for their existence, if discoverable, can be said to fix or determine their essential properties, while within these boundary conditions the object can exist in a variety of differing circumstances which call forth responses which may be called its accidental properties. Thus the accidental property is not erratic or irrational, and Mr. Copi's desire to make it knowable is satisfied. The absence of a postulate of complete determinism of course dooms our knowledge of the object to some degree of irrationality. This irrationality I would describe by saying that there is no *a priori* way of determining what objects can or cannot exist and what new objects may be called into existence by changing circumstances. Man's condition in the world is such that he can acquire a body of empirical knowledge only by scrutiny of such objects as are available to him within the spatio-temporal limits of his environment and the limitations of his faculties of sense and instruments invented to abet the powers of sense. Any extension of his conclusions beyond these limits should not be forbidden, but should be recognized to bear a probability of truth only. Since, on the view I am here recommending, the unit for study and for inference is the object, there can be no possibility of expressing the conclusions of empirical sciences as knowledge of a universal matter (the "real essence," in other words, cannot be displaced), but it may be found that some kinds of object are more ubiquitous in our world than others, and behave in pretty much the same way under all circumstances in which we can study them. These same objects may be found

always to enter into the composition of more complex objects; if so, they play the role of matter, but I would resist the assumption that their behavior is always the same in whatever complex object they may be found, or, what may be the same thing, that all the properties of complex objects can be deduced from complete knowledge of their component objects. This is merely to repeat that a degree of self-determination is attributed to each object.

These comments cannot have their full bearing on our symposium topic without consideration of another fundamental difference between this view and that of Aristotle. The latter deals with essences rather than objects. He takes it for granted that there are definite kinds of things, by their nature clearly demarcated from one another. His essential attributes are therefore properties of a kind, and derivable from the essence common to that kind. The view I offer does not demand that there be such kinds in nature; each object could be unique. But our world seems to be characterized by multitudes of objects closely similar to one another, and it is fortunate for empirical science that it is of this nature, else no transfer of information gained from a study of one object to other objects would be justified. The need to justify such transfers (generalization) calls into play another variety of accidental and essential attributes. That set of objects to which conclusions derived from the study of a limited number of samples can be tentatively transferred must be identifiable. Since it has been assumed that the same objects display different characteristics under different conditions, the required means must be supplied by the discovery of characteristics that are invariant in a given set under a wide variety of conditions. These are identificational characteristics and can be called "essential" as opposed to those which vary with environing conditions, which would then be termed "accidental." I think this is the distinction Mr. Copi has in mind as being epistemological but not ontological. The essential attribute, thus defined, is not necessarily one from which the nature of the object, or any of its further characteristics, can be deduced. It is a mere sign that we are dealing with objects that are likely to be similar in more respects than that of possession of the characteristic that identifies them. But, to avoid confusion, I prefer to call such characteristics "identificational," rather than "essential."

Finally, acknowledgments are due to the insight of Locke. There is a pronounced trend in modern philosophy, which may even have its roots in scholastic philosophy, to make the individual and the particular ontologically primary to the class. I believe the position I have been outlining reflects this trend. But, though

more satisfying to the modern mind, such a procedure raises problems that are exceedingly difficult of solution. One of these is the status of the class, which, after all, we cannot entirely do without. Like Mr. Copi, I can find no adequate grounds for denying a certain arbitrariness in our definition of a kind or species, or even in our successive identifications of a specific object continuant through time. The type of realism I am sponsoring accepts the distinctions between objects and kinds made in ordinary life, but does not insist that these be the only ones that can be made. Indeed, as Locke has noted in passages quoted by Mr. Copi, different distinctions are made in different societies, and are reflected in their respective languages. At all events, I don't think we have to conclude that our world is ontologically a chaotic mush from which men carve objects and species by imposing purely arbitrary definitions upon segments of it. After all, Locke's nominal essence is characterized by something more than merely being thought of as a set of qualities inhering in, or caused by, a substance. If his "mode" is a purely arbitrary grouping of ideas, then the nominal essence is distinguished from the mode by the manner in which it has been formed: that is, by observation of the ways in which qualities do persistently group themselves in nature. This is a point on which Locke was not too clear himself. If he had insisted on it in the appropriate contexts, he would have been in a position to allay some of the sting of arbitrariness in the nominal essence. Our world does seem to display natural "joints," and though, the more we study it, the more joints we may discover, and the more confusedly they overlay one another, this is not evidence for the non-existence of ontological joints.

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ON DEFINING GOOD

JUST what one means by "good" is, of course, a crucial issue of value theory. It is beyond dispute that "good" is frequently vague and ambiguous and indefinite, and it is this situation which prompts this investigation into the problems of defining "good." Many of the conflicts which arise from attempts at defining "good" are as much problems of definition in general as they are problems of value theory. This is not to suggest that all the problems of value are ultimately linguistic. Nevertheless, no real approach can be made toward solving basic problems of value until these problems of definition are met.

The history of definition can be divided into four eras, characterized by (1) essence determination, (2) concept determination, (3) meaning determination, and (4) determination of new marks or signs. These may indeed have a historical order, as Dubislav suggests in his *Die Definition,* but, more important, each also has its contemporary exponent. This is first evident when we examine the nature of that which is being defined. We can readily discover in contemporary literature attempts to define four classes of *definienda.* First, particularly in the construction of formal language systems, we note the necessary task of defining certain symbols or primitive marks. In this sense, definition consists in ascribing meaning to a mark by relation to other marks which are found in the postulates of the system. Secondly, and most commonly, there are the attempts to define words, elements of the natural language. Dimensions of dictionaries give evidence to the importance of this class of definitional objects. Thirdly, there are the attempts at defining concepts, which in general are considered to be non-linguistic entities: classes, relations, properties, functions, and the like. Fourthly, we note the attempt to define "things," entities of a real nature, not specifically marks, words, or concepts.

This empirical classification of *definienda* as referring to symbols, words, concepts, or things has its counterpart in *definiens* analysis. This would allow, therefore, for the generation of sixteen structural types of definition, but observation of usage limits the possibilities to perhaps nine or ten. The generated types of definition justify the following table, common usage limiting the actual types to those marked "c."

I.	Symbol—Symbol	(c)	IX.	Concept—Symbol	
II.	Symbol—Word	(c)	X.	Concept—Word	
III.	Symbol—Concept	(c)	XI.	Concept—Concept	(c)
IV.	Symbol—Thing	(c)	XII.	Concept—Thing	(c)
V.	Word—Symbol		XIII.	Thing—Symbol	
VI.	Word—Word	(c)	XIV.	Thing—Word	
VII.	Word—Concept	(c)	XV.	Thing—Concept	
VIII.	Word—Thing	(c)	XVI.	Thing—Thing	(c)

This table is empirically established and is not to be taken as normative in any way. One might very well define a word in terms of symbols, but this would be using definition in a very unusual sense.

Conjunctions I, II, and III are the definitions of any uninterpreted symbolic system. I signifies the abbreviation of a long

or unmanipulative expression by a shorter one. II illustrates the quasi-definitional function of descriptive explanations of primitives, and III the attempts at postulational definition. None of these is of primary significance to us in this study, for they are categories of notational convenience, having to do only with symbolic systems. Both IV and VIII illustrate types of ostensive definition, and these will also be ignored in the following discussion, wherein we are interested in something more than merely pointing out instances of "good." The remaining five categories of common usage are relevant for the definition of value terms.

Definitions of type XI are important for G. E. Moore and others who hold that to define a concept is to give an analysis of it in terms of another concept. In spite of the fact that the *analysandum* and *analysans* must be verbally expressed, the analysis is not of words but of concept and in terms of concept. We shall call such definitions analytic definitions, taking care that this terminology be not confused with any other sense of analytic. There are other definitions which likewise do not simply determine the interchange of words. We may define certain terms, for instance, by allowing these to remain in sentential form in the *definiendum* and define them in terms of a conceptual *definiens*. A convenient way to define "grandfather," for instance, is to consider as *definiendum* "x is the grandfather of y" and define in terms of a conceptual expression. We shall term these contextual definitions or definitions-in-use (VII). Very frequently, however, definitions are of such a nature that direct substitution is possible and equivalence of meaning holds. These are definitions of words in terms of words (VI). These we shall call explicit definitions. Of course, should one deny any distinction between word and concept, the schema becomes considerably simpler. Again, concepts are sometimes defined in terms of what we have loosely called "things," as the occasion of the effect, the *definiendum*. "Sphere," for instance, may be defined as "the solid generated by rotating a circle about a diameter." This type we shall call causal definition (XII). Finally we shall consider thing-thing definitions as those which have been traditionally held as "real" definitions. These we shall call essential definitions, those which define in such a way that from the essential attribute one may deduce all the properties which belong to the object defined (XVI).

Anyone who attempts to define "good" must do so only on the basis of an accepted criterion of definition. It is at just this point that much of contemporary value theory becomes chaotic, and many controversies ridiculous, for it is impossible to dispute intelligently about the *definiens* without attending to criteria. Let

us consider one writer for each of these types and observe how an attempt is made to define "good."

In the *Principia Ethica,* G. E. Moore admits that definitions may be construed in different ways, such as expressing one word's meaning in other words, but makes it plain that he is seeking something quite different in his treatment of the definition of "good." Definitions of the kind that he is asking for are those which describe the nature of the notion (concept) denoted by a word,[1] and do more than simply provide synonyms. This analysis is possible, of course, only when the *definiendum* is complex, for a simple notion cannot be analyzed into parts. The choices open to us concerning "good" are then few. Either it is (1) simple and therefore indefinable in terms of an analytic definition, (2) a complex, and therefore admitting of disagreement of analysis, or (3) meaningless. The meaninglessness of "good" is quickly dismissed by an empirical argument that experience will demonstrate that in every case "good" is a unique object. The complexity of "good" is refuted by the simple procedure of insisting that we can always inquire into the goodness of any *definiens* in any attempted definition of "good." The assertion "This is good" is not identical with any other proposition. When we attempt to define "good" we cannot succeed, and all those who do define "good" commit the "naturalistic fallacy," which is not, as so many insist, the fallacy of defining "good" in non-ethical terms, but the fallacy of defining a simple term when the criterion of definition is analysis into parts.

C. L. Stevenson's attempts to define "good" appear in the development of "working-models," which are admittedly inadequate definitions-in-use or contextual definitions. This inadequacy is not of form, but of the nature of the *definiens.* In the initial working-model:

> " 'This is good' means *I approve of this; do so as well,*" [2]

the *definiens* emphasizes the important notion of attitudes and their significant place in this theory. The vagueness of "good" is reduced by severely restricting the descriptive reference to the attitude of the speaker. The chief interest of the second pattern presented is in its pointing out a type of definition which pleads a cause, and by so doing redirects attitudes by altering descriptive meaning for the sake of precision without appreciably altering the emotive meaning.

[1] *Principia Ethica,* p. 7.
[2] *Ethics and Language,* p. 21.

> " 'This is good' has the meaning of 'This has qualities or relations X, Y, Z . . . ,' except that 'good' has as well a laudatory emotive meaning which permits it to express the speaker's approval, and tends to evoke the approval of the hearer."[3]

Should any such definition be expected to preserve its customary emotive meaning, "good" is clearly indefinable, but Stevenson insists that emotive meanings, lacking exact equivalents, can nevertheless be characterized and that a definition is possible, consisting of equivalent descriptive meaning and characterized emotive meaning, and this definition satisfies the requirements of contextual definition.

The line between contextual and explicit definitions is not always sharply drawn, and frequently, when it is recognized, it is not insisted upon. Explicit definitions are herein considered as those characterized by equivalence of meaning. The *definiendum* is freed from the sentential function which characterizes contextual definitions. R. B. Perry, admitting that no definition of terms which have emotive meaning can provide full equivalence, denies that this destroys the function of definition. In *General Theory of Value* Perry is interested in interpreting basic principles of value in terms of interest. Value is preferred over goodness as the basic term because it can be applied both positively and negatively, and because it escapes some of the special meanings which "good" has acquired. There is a clear relationship, however, for it follows from his analysis that

> " . . . the object of positive interest . . . is, by definition, good."[4]

It is intended that this definition function as a statement of equivalence of meaning, and thus the word "good" can be replaced by "object of positive interest" in sentences.

H. J. Paton, in *The Good Will,* objects to the intuitional attitude in value theory and to any interpretation of "good" as indefinable. He displays a certain disinclination to deal with the problem of definition, apparently because of a very narrow usage which limits the criteria of definition to the analytic dissection of Moore and the traditional *per genus et differentiam.* Moore's notion may be useful at times, but

> "What I do believe is that goodness must be understood in reference to something going beyond it—as is recognized in the traditional view of definition."[5]

[3] Ibid., p. 207.
[4] *General Theory of Value,* p. 236.
[5] *The Good Will,* p. 41.

"Good" is understood and described by Paton only in organic connection with the coherent will. The relationship is not, however, in the traditional sense of definition which maintains an existential link between *definiendum* and *definiens*. "Good" *is not* coherent willing. "Good" is *the effect* of coherent willing. The link is causal, not existential. This is apparent when we are told that we must hold the propositions (1) *To be good is to be coherently willed,* and (2) *To be coherently willed is to be good,* yet deny the identity of "coherently willed" and "good."[6] Thus goodness is the effect of coherent willing and coherent willing is the cause of "good." It is interesting to note that Moore allows for this causal connection[7] but denies that a causal criterion is satisfactory for definition.

Aristotelians have traditionally conceived of definition in terms of essences: something defined in terms of something else which can communicate the essential structure of the first. When Mortimer Adler defines "good" as "any object of desire" he is not attempting to provide us with a pair of synonomous expressions, nor a causal relationship, but a statement about the essence of "good." Desire does not confer goodness upon an object. The point of the argument is to show that whatever anyone desires is desired for the very reason that it *is* good. The term defined is a "real" (not apparent) good: "good" as actual being in relation to potency.[8] The object of desire as *definiens* is to be construed as the object of a natural desire, tending to fulfill the being of man. This is what has traditionally been known as a *real* definition, not of names, or expressions, but of things.

It is apparent in these instances that philosophers of value in general are not familiar with the structure of definition as outlined above. Frequently, either the matter of criterion is ignored, or one criterion is assumed, and taken to be the *only* criterion. This undoubtedly is the basis of many disputes concerning the meaning of "good," but not all. The differences concerning the definition of "good" are of three kinds: (1) criterial, (2) pre-criterial, and (3) post-criterial.

(1) Criterial differences are differences in meaning of "good" which derive ultimately from differences in the accepted criteria of definition. If, for instance, "good" is defined as the effect of a certain volition by *A* and as an object of interest by *B,* these definitions will display no commensurability so long as definition is considered as uni-criterial. When we recognize that the differ-

[6] Ibid., p. 52.
[7] *Principia Ethica,* p. 131.
[8] *A Dialectic of Morals,* p. 76.

ence is basically criterial, that *A* is presenting a causal definition and *B* is arguing for an explicit definition, the apparent divergence of views is more readily resolvable. The fact that not all differences in defining "good" can be settled in this way simply demonstrates that not all differences in value theory are criterial. If all differences of meaning were criterial, a study of definition itself would be sufficient to resolve all questions of value.

(2) Pre-criterial differences refer to instances in which the definition is not dependent upon the criterion, but on a prior preferential determination of the *definiendum*. Consider Moore's preliminary treatment of "good." In the *Principia Ethica* the simple nature of "good" is established first, and the demonstration of the indefinability of it follows. His treatment of the problem of definition does not begin until the page following his assertion that "good" is a simple notion. The source of this notion is not our concern here, but it is very important to note that simplicity did *not* derive from attempts at definition. It is logically prior to any criterion-selection.

(3) Post-criterial differences are differences not occasioned by differences in preliminary notions of the *definiendum* nor by criterial disagreement, but occasioned when two persons who agree on the nature of the *definiendum* and the way to define it cannot agree on the form which the *definiens* shall take. Consider Perry's word-*definiendum* and substitutional criterion (explicit definition). De Witt Parker has no quarrel with these, yet Perry's *definiens* and Parker's *definiens* are clearly not the same. As opposed to Perry's "object of any positive interest," Parker insists on "good" being defined as the *satisfaction* of interest.[9] Perry indeed finds this difference serious, but suspects that it may be ultimately only verbal.[10] If his amplification of this notion into the assertion that it is a matter of choice whether we speak of a subjective state of an object or an objective state of a subject is a legitimate one, then this post-criterial difference is resolved by an equation of *definiens*. The resolution of criterial and pre-criterial differences demands the same recognition of the preferential nature of pre-definitional notions and of criterion choice. Only when we have clearly in mind the nature of the three elements of definition can any attempt at defining "good" have any significance.

JOHN J. FISHER

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[9] See "Value As Any Object Of Any Interest," *International Journal of Ethics*, Vol. 40 (July, 1930), p. 465.

[10] See "Value As Election And Satisfaction," *International Journal of Ethics*, Vol. 41 (July, 1931), p. 441.

AMERICAN PHILOSOPHICAL ASSOCIATION
EASTERN DIVISION

FIFTY-FIRST ANNUAL MEETING

GOUCHER COLLEGE, DECEMBER 28–30, 1954

PROGRAM

TUESDAY, DECEMBER 28

2:00 P.M. CAUSALITY IN SOCIAL SCIENCE (symposium)
Room 200, Van Meter Hall
Lewis S. Feuer and Ethel M. Albert. Comments by Louis O. Kattsoff.
Chairman: Milton C. Nahm

ETHICS
The Barn
John J. Fisher: "On Defining Good." Comments by Paul Edwards.
George Nakhnikian: "Intrinsic Good and the Ethical Object." Comments by E. M. Adams.
Elmer Sprague: "Francis Hutcheson and the Moral Sense." Comments by Bernard Peach.
Chairman: Everett W. Hall

HISTORY OF PHILOSOPHY
Room 004, Van Meter Hall
Frederick Sontag: "The Platonist's Concept of Language." Comments by Jason Xenakis.
Richard H. Popkin: "Charron and Descartes: The Fruits of Systematic Doubt." Comments by Beatrice K. Rome.
James Gutmann: "The Tremendous Moment of Nietzsche's Vision." Comments by Walter Kaufmann.
Chairman: Leroy E. Loemker

4:45 P.M. BUSINESS MEETING
The Barn

8:00 P.M. SMOKER
Mary Fisher Hall

WEDNESDAY, DECEMBER 29

9:15 A.M. ESSENCE AND ACCIDENT (symposium)

Room 200, Van Meter Hall

Irving M. Copi and W. D. Oliver. Comments by John Yolton.

Chairman: R. M. Chisholm

CAN THE PHILOSOPHER INFLUENCE SOCIAL CHANGE? (symposium)

The Barn

Brand Blanshard and John L. Childs. Comments by John A. Irving.

Chairman: Albert Hofstadter

2:00 P.M. THE RIGHT AND THE GOOD (symposium)

The Barn

John H. Randall, Jr. and John Wild. Comments by W. E. Schlaretzki.

Chairman: Lucius Garvin

THE PHILOSOPHY OF KANT

Room 200, Van Meter Hall

Donald Meiklejohn: "Kantian Formalism and Civil Liberty." Comments by E. A. Burtt.

William Sacksteder: "Kant's Analysis of International Relations." Comments by W. H. Hay.

Wallace Matson: "Kant as Casuist." Comments by Laurence J. Lafleur.

Chairman: Charles A. Baylis

AMERICAN PHILOSOPHY

Room 004, Van Meter Hall

Paul Welsh: "Some Metaphysical Assumptions of Dewey's Philosophy." Comments by Elizabeth Beardsley.

Edward Madden: "Wright, James, and Radical Empiricism." Comments by Victor Lowe.

Joseph L. Blau: "Kant in America: Brownson's Critique of the *Critique of Pure Reason*." Comments by John E. Smith.

Chairman: Glenn R. Morrow

4:45 P.M. TEA

Julia Rogers Library

7:00 P.M. BANQUET

Froelicher Hall

PRESIDENTIAL ADDRESS BY ERNEST NAGEL:
"Naturalism Reconsidered"

Charles A. Baylis, *Presiding*

THURSDAY, DECEMBER 30

9:15 A.M. PSYCHICAL RESEARCH AND PHILOSOPHY (symposium)

Lilian Welsh Gymnasium

J. B. Rhine and C. J. Ducasse. Comments by Roland Walker.

Chairman: Ernest Nagel

GROUP MEETINGS

TUESDAY, DECEMBER 28

10:15 A.M. THE PEIRCE SOCIETY

Room 200, Van Meter Hall

Roderick M. Chisholm: "Ethics of Belief."
Herbert Spiegelberg: "A Comparison between Peirce's and Husserl's Phenomenologies."
William P. Alston: "Pragmatism and the Verifiability Theory of Meaning."

STUDY GROUP IN APPLIED PHILOSOPHY

Room 105, Van Meter Hall

Nicholas M. Smith, Jr.: "The Theory of Value in the Decision Process."

7:00 P.M. ASSOCIATION FOR REALISTIC PHILOSOPHY

Room 105, Van Meter Hall

W. A. Gerhard: "Philosophical Anthropology and the Category of Dread." Comments by H. S. Broudy and John Wild.

CREATIVE ETHICS GROUP

Room 200, Van Meter Hall

Symposium: Ethics in Government
In Washington, William Gerber.
In Overseas Operations, Christopher Browne Garnett, Jr.
In Government Propaganda, John T. Cocutz.

PERSONALISTIC DISCUSSION GROUP

Room 201, Van Meter Hall

Laurence J. Lafleur: "An Ontological Approach to Personalism."

7:15 P.M. SOCIETY FOR ANCIENT GREEK PHILOSOPHY

Room 109, Van Meter Hall

Friedrich Solmsen: "Aristotle's Physical World-Picture: An Historical Approach." Comments by Ludwig Edelstein.

Richard Taylor: "Aristotle's Doctrine of Future Contingencies." Comments by Rogers Allbritton.

Officers of the Eastern Division

AMERICAN PHILOSOPHICAL ASSOCIATION

President: Ernest Nagel
Vice-President: Charles A. Baylis
Secretary-Treasurer: Lucius Garvin

Executive Committee

The foregoing officers and
Glenn R. Morrow *ex officio* for one year,

Roderick M. Chisholm (1955)	Carl G. Hempel (1956)
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Everett W. Hall (1956)	Milton C. Nahm (1955)

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